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ORIGINAL ARTICLES.

NEW METHOD OF PERFORMING INTESTINAL ANASTOMOSIS WITH SPECIAL REFERENCE TO ITS ADAPTABILITY TO INGUINAL COLOSTOMY AND SUBSEQUENT RESTORATION OF THE FECAL CURRENT.

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THAT so many ingenious methods of performing intestinal anastomosis have an active and practical existence is proof that none of them is entirely satisfactory. Without mechanical contrivances it is a most difficult operation, and calls for exhibition of the highest surgical skill; with mechanical aids it is less difficult, but these have not yet proved entirely reliable or harmless. The mortality as it stands today is high, partly because of dangers inherent in the operation, and partly because of delay entailed by a course of temporizing therapeutics, thus impairing the patient's strength. The great activity of surgical thought in this particular field will no doubt sooner or later solve the question of a rapid and safe method of approximating the two ends of the severed intestine; and it is with the hope of contributing to this achievement that I offer the results of my individual efforts.

The method to be detailed is the outcome of thought directed toward improving the spur in inguinal colostomy. It can readily be seen that if the spur stands flush with the skin surface, no fecal matter can enter the portion of colon beyond the site of operation, but the spur formed by suspending the gut over a supporting pin or rod has no thickness or rigidity, and the constant dragging weight of the intestines within the cavity soon pulls its upper border below the level of the skin surface, thus permitting passage of fecal matter into the lower portion of the intestine (Fig. 1). It occurred to me that the mesentery of the loop might be folded so as to stiffen the spur by stitching together both sides of the two limbs of the flexure. This, being tried on a dog, was found to furnish the desired remedy, and, furthermore, was capable of easy and rapid execution. As this acute flexion of the gut upon itself forms a septum fully an inch in width between the two rows of sutures, it will be readily seen that simple division along the center of this spur removes all obstacle to the flow of the current beyond the abdominal opening into the lower portion of intestine. We therefore have a simple means of restoring continuity when the proper time arrives.

Five dogs have been subjected to the operation in its two different applications, *vis.*: (1) Enterostomy, as recommended for intestinal anastomosis and temporary anus, by *excluding* the mesentery from between the two rows of sutures, and (2) colostomy, as recommended for permanent anus, by folding the mesentery between the two limbs of the flexure. The details of two of these experimental operations are given here, the others being reserved for a subsequent paper. A large male dog was chloroformed by the author, November 13, 1896, and the usual incision for colostomy made. The parietal peritoneum was stitched to the skin, the colon identified and drawn

FIG. 1.

Diagram showing the intestinal spur drawn below the level of the skin surface by intra-abdominal tension, and fecal matter passing into lower portion of intestine.

through the incision. On account of the short mesentery, but six inches could be exposed. The two limbs of this loop were laid side by side, acutely flexing the center, and sutured together for a distance of three inches. The first line of sutures was placed parallel with and close to the mesenteric border, the second row along the line of the convex borders. This was done by a continuous suture, requiring but one long strand of silk. The loop was now returned to the cavity until the point where the suturing commenced was on a level with the skin, and stretched into the abdominal wound. The protruding cap of the knuckle was clipped off close to the surface. Three days later the dog was again anesthetized, and the artificial anal orifice washed with a stream of warm bichlorid solution. The septum between the two intestinal orifices could be clearly seen, and by passing the blade of a pair of blunt-pointed scissors into each opening, was divided for a distance of 2½ inches. The bleeding was very insignificant, and *required no hemostasis*. The abdominal wound was closed by Byrd's method. For a number of days some fecal

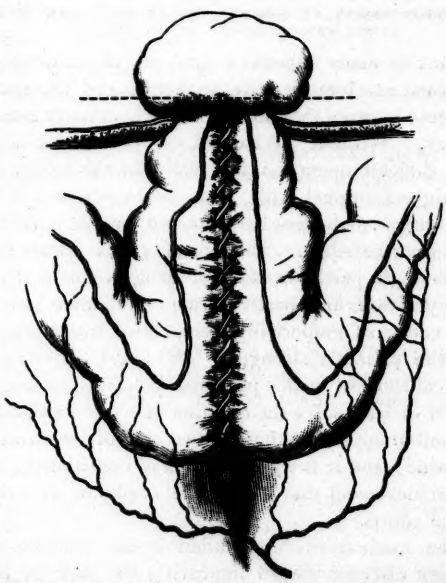
matter oozed through the wound, but it eventually closed, and the dog is perfectly well. This dog is being preserved, to show at a coming medical society event.

Wishing to test the method in the hands of another operator, Dr. J. Shelton Horsley of this city kindly chloroformed a small male dog on December 15, 1896, and performed the operation as recommended for permanent colostomy. The sigmoid flexure was drawn through the incision and a loop sutured together for a distance of three inches. The mesentery, in this case, was *folded in* between the two limbs by running the line of sutures on each side midway between the convex and mesenteric borders. After passing back the sutured loop and stitching it into the abdominal wound, the protruding cap was clipped off. One week later the dog was killed and the specimen removed. The gut presented two circular orifices at the abdominal opening, with the septum between clearly defined and standing flush with the skin surface. The lines of sutures were buried beneath a layer of organized lymph and the two opposed walls composing the spur were firmly welded together by this same material. This spur was extremely firm and rigid, measuring fully one-third of an inch in thickness. Looking at the specimen from the outer end, it resembled the muzzle of a double-barrelled shotgun, *the width of the septum measuring exactly the same as the diameter of the dog's colon.*

Suturing the parietal peritoneum is a procedure of great value. The cellular planes between the muscular layers are shut off from infection by the feces, preventing cellulitis, abscess, etc. The mesentery in dogs being short, but six inches of gut could be exposed, which gives a loop of only three inches when doubled upon itself. In man, eight or ten inches should be brought through the incision when possible. This gives a spur four or five inches long, which can be divided for three or four inches to furnish an ample anastomotic opening.

Without going fully into the defects of the present methods of intestinal anastomosis, I beg to point out that end-to-end suturing is time-consuming, and, even in the most skilful hands, leakage of intestinal contents between the sutures is frequent, as proved by the high death-rate from septic peritonitis. Lateral anastomosis by hand-suture is open to the same criticism. The mechanical aids, such as the vegetable, bone, and rawhide plates of Dawbarn, Senn, and Robinson, respectively, and Murphy's button, are open to many objections, and are considered unsurgical by some operators. The method I offer is applicable to any portion of the intestine which possesses a mesentery. I have not had the opportunity to practise this method in its entirety on man, but in dogs it works perfectly. Theoretically, it bears the stamp of the three ideal requisites, namely, (*a*) rapidity of execution, (*b*) safety of approximation, (*c*) ample anastomotic opening. Rapidity of execution is a desideratum of great value. Exposure of the abdominal contents, especially in the weak and non-resistent, has frequently brought about a fatal issue when the union between the intestinal ends has been perfect. Every one to-day recognizes the value of rapidity in intestinal work, and knows that each additional minute of exposure contributes to shock. Safety—by which I mean accuracy—of approximation, is the essential feature of the operation. The faulty application of a suture, bringing about leakage of intestinal contents, produces a certain fatal result. The third requisite, of ample anastomotic opening, has been one of the weightiest objections to the very ingenious Murphy button.

FIG. 2.



Intestinal anastomosis. Showing one side of the loop after it has been sutured, passed back into the cavity and stitched into the abdominal wound. The lesion is left protruding, and the dotted line indicates where protrusion is to be clipped off.

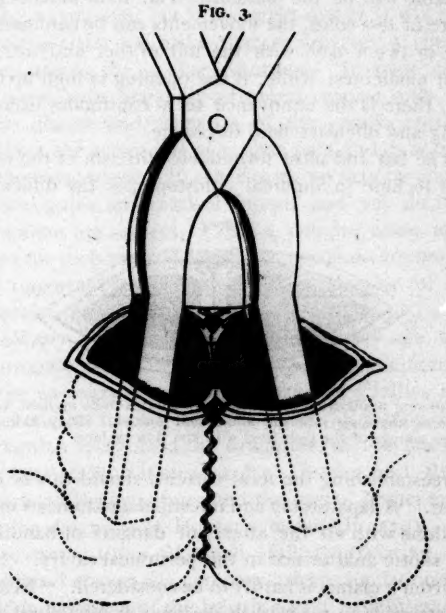
The method which I propose is as follows: After the usual preparation of the patient for laparotomy, and free purgation when possible, an incision of sufficient length is made down to the peritoneum. All hemorrhage being carefully arrested, the peritoneum is incised and a sterile pad introduced to protect the intestines while the parietal peritoneum is stitched to the skin with a continuous catgut suture. The lesion which has necessitated the opera-

tion (tumor, stricture, etc.) is now sought for and, when found, is drawn through the incision until six inches of healthy gut on each side of the piece to be exsected is exposed. The two limbs of the loop, with the lesion as apex to the knuckle, are laid side by side, the convex borders in apposition, and a running stitch of fine silk, beginning at the points where exsection is desired, is carefully inserted, uniting the two pieces of intestine close to and parallel with the mesenteric border for a distance of six inches (Fig. 2). The sutured loop is then passed back into the abdomen until the point where the running suture begins (*i.e.*, the point where the intestine is to be exsected), is on a level with the skin surface, and the loop stitched into the abdominal wound with a continuous suture of catgut. This leaves the lesion protruding. If waiting is permissible, twelves hours should elapse, and then under cocain anesthesia, the protruding intestine is snipped off with scissors level with the skin. Having established an artificial anus, we may now wait any length of time in order that the lymph thrown out may solidly unite the apposed walls of the sutured portions.

The next step is the reëstablishment of the continuity of the intestine. With a finger inserted into the opening of each portion of intestine, to define the spur and guide the cutting instrument, the septum is divided with scissors along its median line for a distance of four inches, or, better still, a clamp such as H. H. Grant's of Louisville, which crushes rather than cuts, may be used (Fig. 3). A moment's study of the accompanying illustrations will make the technic perfectly clear. It will not be necessary to take out a wedge-shaped section, as the passing of the feces will prevent reunion of the septum. The abdominal wound may now be closed by any method which suits the surgeon. I prefer the method of Szymanowski[1] or Byrd. The technic of the latter is here appended. In the most expert surgical hands, the integrity of the line of sutures approximating the two ends of severed intestine in an anastomosis is a matter of uncertainty, and the subject of grave anxiety to the surgeon until a movement of the patient's bowels demonstrates successful union. By the author's method, this danger of leakage at the line of co-aptation is entirely removed. Exsection of the lesion is performed *outside* the abdominal cavity and the anastomosis effected subsequently with little or no additional risk. In the hands of experienced operators, the mortality of stitching the loop of gut into an abdominal wound and, after plastic exudation has sealed this line of stitches, clipping away the protruded portion, under cocain anesthesia, would probably not exceed two in a hundred. Add to this, for completion of my operation, a simple division of the spur, which should be devoid of danger, or nearly so, and it would seem that the method offers great hope of being a life-saving procedure.

In inguinal colostomy the operation is to be considered a failure if any fecal matter passes the opening into the distal portion of intestine. The originators of the different methods now in use admit that in this respect the spur is incompetent. Mathews of Louisville, Ky., who uses two hair-lip pins thrust through the mesentery, says: "The fecal current is not always diverted." Kelsey of New York, speaking of colostomy in general, takes the inefficiency of the spur for granted, saying: "Relief of pain and tenesmus is sometimes only partial, because a portion of the feces passes the opening." The use of any mechanical support, such as glass rods, pins, etc., to hold the loop of gut in the abdominal wound while adhesions are forming, is, like the mechanical contrivances for anastomosis, incompetent and unsurgical. The spur will sag below the level of the skin when the support is removed. Of the present advocated operations, the nearest approach to efficiency is Allingham's "mesenteric stitch," but Mathews, who is a great admirer of this method, admits that it occasionally fails to completely divert the current. According to Allingham, procidentia occurs in six-

FIG. 3.



Intestinal anastomosis. Showing the septum to be divided in restoring the fecal current. Grant's clamp in position for the division. (In permanent colostomy this septum remains as a rigid and effective spur. Contrast this with diagram 1, which shows the spur formed by suspending the gut over a supporting pin or rod.)

[1] "Wyeth's Surgery," second edition, page 702.

teen out of sixty cases, and to avoid this he has advised drawing the gut out of the wound until the mesentery is taut, stitching it, and, subsequently, under ether narcosis, excising all the protruded portion with a specially devised clamp. He confesses that cutting away such a large mass of intestine adds to the gravity of the operation, and Treves criticises the procedure as unnecessary and severe.

Cripps draws the intestine out of the wound, passes it over his finger back into the abdomen until the mesentery is taut, and then stitches it. This plan is preferable to Allingham's, but it may be objected that the opening is placed too high up the gut. The nearer the opening is to the rectum, the more comfortable will be the patient. The fecal mass being more or less solid, the movements can be confined to one or two a day, with the aid of diet and astringent medicines; while, if the opening is high up the gut, there is the annoyance of a continuous excoriating and offensive fluid discharge.

The last and most formidable criticism of the present technic in inguinal colostomy, is the difficulty

FIG. 4.

Showing application of the first two sutures to be applied when stitching the loop into the abdominal wound. They hold the upper margin of the spur level with the skin surface.

of reëstablishing the fecal current, should this be desired. A laparotomy and intestinal anastomosis must be done with all the attendant dangers of handling the septic anal orifice in the peritoneal cavity. Depuytren's clamp is hardly to be considered. "Nearly all attempts to reëstablish the anus at its natural site after colostomy have signally failed." (Mathews). That such dangers attend the restoration of the intestinal continuity has probably done much to place the operation in the position of being applicable only to ineradicably obstructive lesions of the colon. No one would dare, in the face of the high mortality, to advocate or perform colostomy for acute lesions, such as inflammation, ulceration, etc., which physiological rest might cure. The operation which I propose will obviate these three principal faults, *vis.*, (1) Inefficient spur, (2) procidentia, and (3) mortality from restoring the continuity.

In performing colostomy an incision is made one and a-half inches long, two inches inside of the spine of the ilium, crossing at a right angle a line drawn from the anterior superior spine to the umbilicus. A sterile pad is introduced to protect the intestines, and the parietal peritoneum is stitched to the skin. When the colon is identified, it is drawn through the abdominal wound until a loop *twelve inches* long is exposed. If the anus is to be permanent, the loop is acutely flexed upon itself and a running suture of silk is placed along the line midway between the mesenteric and convex border on both sides, beginning at the apex of the knuckle and extending for *six inches* down the two limbs of the flexure, thus approximating the two serous surfaces and *folding the mesentery in between the limbs to stiffen the spur.* The sutured loop is then dropped back until the point, as shown in Fig. 2, is level with the skin surface. A stitch is passed through the skin into this point back through the skin and tied (Fig. 4). This must be carefully and accurately inserted. The suture is repeated on the opposite side. The gut is now stitched in the abdominal wound with a running suture of catgut. Catgut as a material for suture in this operation is to be preferred to silk, as the latter is hard to find among the granulations when the time comes for removal, and, by capillarity, it infects the stitch-holes, giving rise to pain and sometimes abscess.

After an interval of forty-eight hours, if waiting is permissible, the protrusion is snipped off with a pair of scissors nearly level with the skin, cocain anesthesia being required. We now have a spur so stiff and rigid that it cannot be dragged below the skin level, and no feces, either solid or liquid, can pass into the lower portion. In a few days the plastic exudate around this fortified spur has so thickened that procidentia is prevented.

If the artificial anus is to be temporary and subsequent closure of the colostomy wound is desired, the line of sutures approximating the two limbs should be inserted *like those given for anastomosis*, which does not fold in the mesentery, and when ready for restoration, the spur is simply divided along its median line for four inches, as directed for anastomoses (Fig. 3). When the abdominal wound is closed we have a perfect and ample anastomosis between the proximal and distal portions of the colon.

Byrd's method for closing the abdominal wound is as follows:[1]

"The skin on each side of the opening is caught up in a fold, in such a manner that the top of the folds meet easily over the opening of the bowel; an incision along the top of these folds, which is about three-quarters of an inch from the opening in the bowel, is then made through the skin and superficial fascia, and extended so as to form an ellipse enclosing the opening. That portion of the skin next the opening is then dissected up from the outer side, leaving it attached at the inner side to the opening in the bowel; it is then inverted and turned into the bowel. This procedure brings the raw surfaces in apposition, and throws the skin into the bowel, so as to form a

[1] "Kelsey's Diseases of the Rectum and Anus."

continuation of the mucous membrane. The skin on either side of this elliptical raw surface is now brought together by passing two stay sutures, with a shot and shield, back about an inch from the cut edges, and making traction. This brings the edges together and makes them rise from the abdomen like an inverted V. Where the skin meets at the apex of the V it is fastened with a catgut suture. The portion of the skin in the intestine is shaped like a V, and that outside has its apex immediately above the apex of the lower one. By this procedure fully an inch and a half of raw surface is brought in contact over the opening in the bowel, thus almost insuring sufficient adhesion, while the V raw surfaces of the skin that is inverted into the bowel act as a valve, and are held in apposition by the pressure of the contents of the bowel."

I have used this method of making the spur in one case, but, as yet, have not had the opportunity of attempting restoration of the gut.

L. M., Chicago, a jeweller, sent to me by Professor A. R. Robinson, was suffering from a recurrent tumor of the rectum which had been diagnosed as sarcoma. He had been operated on three times, with prompt recurrence each time. When I saw him the anal sphincters and rectum, for a distance of three or four inches, had been removed. The growth had recurred and involved the tissues around the outlet, as far up as the end of the severed gut. Believing it to be sarcoma, and further attempt at local removal unadvisable, inguinal colostomy was proposed and consented to. On July 15, 1896, at the New York Polyclinic Medical School and Hospital, I did the inguinal colostomy and constructed the spur in the manner just detailed. Up to this date no procidentia has occurred, and absolutely no fecal matter has passed beyond the opening. Dr. Robinson has since removed the growth by medicinal means, in spite of the fact that the diagnosis was that of sarcoma. The patient, however, prefers to keep the artificial anus, as the anal sphincters have been removed.

The additional operation of closing the abdominal wound, advanced as an objection to the method, could scarcely be defended if mortality is lessened. In this regard it is highly probable that the free and ample anastomotic opening, secured by dividing the septum for four inches, would permit the artificial anus to close by granulation, and if division of the spur could be accomplished without general narcosis, a second operation would be unnecessary. Liability to ventral hernia is an objection anticipated, but it is a matter of minor import compared to the saving of life. It is probable that no perfection of the technic of colostomy will ever make it acceptable to either surgeon or patient as a permanent substitute for the natural outlet; but, if the dangers of closing it and restoring the continuity of the fecal current can be obviated, the operation will have a wide field of application in those acute lesions of the intestinal tract in which temporary physiological rest would prove curative.

STENOCARDIA (ANGINA PECTORIS).[1]

BY H. NEWTON HEINEMAN, M.D.,
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IT is unfortunate that a celebrated man like John Hunter, the anatomist, should have been among the earliest in whom the disease of angina pectoris was clearly recognized. The intense symptoms from which he suffered have ever since been considered as essential to a correct diagnosis, and our knowledge of this affection has thus been much retarded. Then, too, the difficulties in recognizing small, yet important, lesions macroscopically, and those besetting even histologic work have been additional factors in delaying a fuller appreciation of the conditions underlying it. Often, indeed, stenocardia appears to be a symptom, but it is certain that time will confirm the claim we make that it deserves a special place among the cardiac disorders. In some cases we meet with markedly advanced cardiac and valvular disease and atheroma of the vessels, entirely without the symptoms of cardiac pain and its accompaniments, whereas in other cases we may be unable to recognize any marked lesion, and yet decided symptoms are present. That a definite cause must exist for such marked symptoms needs no argument, the important issue being the determination of the essential cause.

History.—Chirac, more than 150 years ago, tied a coronary artery. Morgagni observed calcification of the coronary artery, and referred to Crellius and Thebesius as having done likewise. Rougnon and Heberden recognized the symptoms of the disease, the latter calling it stenocardia. Jenner and Parry associated the symptoms and the lesion, Jenner making the diagnosis of Hunter's malady in 1793. In more recent times, Marshall Hall, appreciating the relations between the coronary-artery circulation and sudden cessation of the heart's action, gave utterance to views which were followed up by Erichsen, who, in 1842, devoted himself to experimental research upon the problem.

The labors of v. Bezold, Breymann, Samuelson, Cohnheim, v. Schulthess Rechberg, and Bettelheim, of Panum, G. See, Bochefontaine, and Roussy McWilliam, and by no means least, of our own countryman, W. Townsend Porter, have made more clear the physiologic relation between the coronary circulation and the action of the heart muscle. The contribution made by me to the distribution of the coronary arteries may possibly throw a little additional light upon this subject.

First, a few words as to the anatomy of the cardiac circulation. Having established the fact that the coro-

[1] Delivered before the Section on General Medicine, New York Academy of Medicine, November 17, 1896.

nary arteries frequently terminate in comparatively large trunks, and, secondly, that the capillaries come directly from large trunks, and that the capillaries, by reuniting in little congeries, form regular reservoirs from place to place between the muscle-fiber and fasciculus, and that the anastomosis takes place between the capillaries, we can appreciate the fact that interference with a larger artery means interference with an enormous extent of capillary surface.

Porter's experiments have proven that experimental interference with the coronary circulation gives rise to changes in intraventricular pressure, causes fibrillar muscular contractions, and even brings the cardiac muscle to a standstill. Still further, that the intraventricular pressure and the character of the contraction and relaxation in one ventricle may be speedily affected by ligation of a coronary artery supplying the other ventricle.

Etiology.—In seeking for the cause of the condition, it becomes quite evident that it must be looked for first in the heart-muscle, secondly in the coronary arteries, and thirdly in the nerve supply. Degeneration of the heart-muscle fiber, or of the muscular fasciculus, change in the cement substance, sclerosis and atheroma of varied degree of the coronary vessels, degenerative changes in the nerve-supply, functional disturbance of the heart-muscle from impaired nerve function, and reflex vasomotor disturbance of the heart have all in turn been found as factors in the causation of the symptoms.

But views have been as numerous as the authors who have written upon the subject, and naturally have varied according to the physiologic or pathologic experience of the writer. Osler quotes the old views of Allan Burns, readopted by Potain, that the anatomical condition is one of transient ischemia of the heart-muscle, because of disease and spasm of the coronary arteries. Thoma speaks of sclerosis or thickening of the coronary arteries always being present. Heberden looked upon it as heart-muscle cramp. Traube, and many following him, Tyson among the recent ones, considered it the result of an acute cardiac muscular dilatation causing great tension of the ventricular walls, associated with diseased coronary arteries. Wood and Fitz speak of the cardiac dilatation being a result in cases in which the disease has existed for years. Lauder Brunton, in a very recent article, accepts the brilliant simile and explanation of Sir Grainger Stewart, who speaks of two factors—the heart and the arteries. If the arteries are diseased, and so resist the entrance of blood, we have pain from pressure on the nerves in the more elastic arterial walls or from cardiac overdistension; if, however, the heart is too feeble to drive the blood into arteries that are sufficient, we have cardiac overdistension from its own muscular weakness. In brief, Stewart says: "Believing that both cardiac weakness and more or less change in the arteries coexist, cardiac pain is generally due to weakness of the heart in proportion to the resistance it has to overcome." The reflex effects of the nervous system have long been recognized. Charcot has long since demonstrated that in gastric crises the heart is affected. Franck proved that the nervous terminal twigs of the aorta, when irritated, affected the heart and respiration.

The effect of mental emotion in disturbing the heart and vessels has been forcibly illustrated in the cases of the kidnapped slaves of Livingstone, many of whom died broken-hearted. An example equally pregnant is the following:

X., forty-eight years of age, an industrious porter, with healthy heart, was examined by me daily before and after his day's work. After continuing this for five weeks, I found that, on a certain evening, the transverse diameter of the heart had increased more than 1¼ inches as compared with the measurement of the morning. This difference exceeded any I had ever noted as the result of work. Upon questioning the man, he told me he had done only a very moderate day's work, but that just prior to his coming to me he had had a wordy quarrel, which excited him somewhat.

The case of a literary man, who suffered from cardiac disease and occasional attacks of stenocardia, is of interest. He found that at times when he worked under mental pressure he would have slight precordial pain radiating into the left arm. Upon recommending him to work less unremittingly, he reported that if when the pain came on he ceased work, or worked with less intensity, it instantly abated.

Sexual intercourse is often an exciting cause, and we can appreciate our own responsibility when the question of coitus between husband and wife is to be decided by our opinion. Even the taking of an ordinary meal may excite an attack, and the digestion of a small quantity of milk may even be the exciting cause. It is a well-known fact that persons suffering from gouty kidney, and hence from increased arterial tension, often have attacks of stenocardia. It appears, therefore, that all causes which tend to increase intra-arterial tension, and which tend to relax the heart-muscle or cause the organ to act spasmodically, or to contract irregularly, and thus produce dilatation or weaken the force of the heart's action, or causes which call upon a weakened heart to overcome sudden and even ordinary exertion and, finally, causes interfering with the proper nerve-control of the heart and blood-vessels will produce the attacks. To this last group the so-called Nothnagel category

of stenocardia vasomotoria belongs, and, at times, Jacob's angiospastic cardiac dilatation.

The various exciting causes of the symptoms of the disease demonstrate that the spinal cord, through its motor and sensory branches, the cerebrum, the pneumogastric, the cardiac and celiac plexuses, and, at times, the vasomotor system, are the avenues along which the effects are carried.

The ideas heretofore held that in cardiac failure of every kind the liver, spleen, and kidneys become the subjects of slow engorgement is still true, but it is not the entire truth. In the first place, we must accept the fact that the heart in health is liable to slight variations in size and shape. In disease, this change becomes more marked. But the liver and spleen are likewise subject to these changes. For several years Schott and numbers of his friends, myself among them, have maintained that in a number of cases in which the heart was seen to get smaller after exercises and baths, the liver likewise diminished in size. Recently Heitler[1] of Vienna has demonstrated, and so confirmed the fact which has so long been contended for by Schott, that there are not only coincident changes in the volume of the heart with the volume of the pulse, but also changes in the volume of the liver and spleen with those of the heart and pulse. Heitler found that when the pulse was small in volume and the heart was large, the liver and spleen were large; and with a larger pulse- and smaller heart-volume, the liver and spleen were smaller in volume.

Pathology.—We find thickening, atheroma even to calcification of the coronary arteries and their capillaries, similar degenerative changes in the arteries of the body and changes in the heart-muscle and the cement substance varying in degree and extent. In a few instances, changes have been found in the sympathetic cardiac plexus and pneumogastric branches. I am certain that these latter cases will in time be increased in number, and the etiology be cleared up in a considerable number of cases in which the muscular and arterial lesions are found to be so slight, and yet in which the symptoms were so pronounced during life. I will be pardoned, however, when I digress to say that after death the macroscopic examination of the heart should never be relied upon alone, but a thorough microscopic examination should be made as well; and it is essential for the success of the latter that the heart-muscle be as fresh as possible, and that more than usual care be taken for its proper preservation. Injection of the coronary arteries will add materially in facilitating the study of how far the lumen of the artery is encroached upon. As an ex-

FIG. 1

Section of Intermuscular Septum, showing thickened coronary vessels. (Prepared and photographed by the author.)

[1] *Wiener med. Wochen.*, 1896, No. 13.

ample of such degenerative changes found in the arteries which could not be recognized macroscopically, I ask attention to Fig. 1. The patient had stenocardial attacks for years, and died at the *Hôpital St. Louis*, Paris, of chronic Bright's disease. The presence of aortic lesions is strongly dwelt upon by many authorities as being so often present that their share in the disease must be considered. Aortic lesions, however, are those of adult life, as a rule, and when mitral lesions are also present, they have usually been acquired in early life. While these lesions may have preceded the symptoms of stenocardia by many years, the reverse also holds true, for as the suffering patient grows older, valvular lesions may gradually make themselves manifest, and may be the result, rather than the cause, in some cases. During the life of a patient, if examination reveals cardiac valvular lesions, or thickened or sclerosed arteries, or myocarditis, or cardiac arrhythmia, by which we can infer disturbed functional activity, the pathology is cleared up. In some cases I have found that an ophthalmoscopic examination of the fundus, by revealing degenerative changes of the arteries, or hemorrhages, aided me materially in arriving at a diagnosis when the lesion was little manifest in the superficial vessels. But in all cases of doubt the physician should apply the sphygmograph[1] and sphygmomanometer,[2] and, if need be, also the arteriometer,[3] before deciding that the vessels and heart are functionally and organically sound. It is not without reason that I say that a single examination decides nothing; several examinations, repeated at the same hour of the day on successive days, at the same digestive period, under well-arranged normal conditions of the patient, and in the same position, preferably that of lying down (sometimes when the pressure is feeble the uncertainty of the results compels the use of the sitting posture) should be made.

Symptoms.—It is generally agreed that men are more prone to these attacks than women, though I think the proportion in favor of men has been somewhat exaggerated. The ages between forty and fifty are those in which most men are attacked. Before entering upon the consideration of the symptoms, I must state that it is my firm belief that by far the larger number of cases of pseudo and hysterical angina are cases of true angina. When heart-pain recurs in its characteristic manner, and with some of its usual symptoms, my experience has taught me that sooner or later the signs become sufficiently certain for me to include the case under true stenocardia, and this in a considerable number of cases in which, *at first*, the usual examination gave no indication of real lesion. For me a patient must have a clear history of hysteria preceding or accompanying the attack of heart-pain, and have been under observation for some time before I, from a negative standpoint, place the case in the pseudo-angina category.

Again, it has been customary to consider as genuine cases only those in which the symptoms of pain were marked and unmistakable. For me, the mildest symptoms characterize a considerable number, or the early stages of a number, in whom lesions may be recognized with difficulty, or not at all, for a time. Experience has, in a certain number, made the lesion clear, after several years of observation. Next, as to the ultra-severe cases, it has seemed necessary to some authorities (Nothnagel and others) to place in a separate category the cases in which the severe general vasomotor disturbances occur. Such cases have been denominated cases of angina vasomotoria. To me, these are only cases with unusually severe complications, or else severe forms of the disease. While allowing for exceptional cases of pseudo and hysterical stenocardia, I prefer to include all cases, mild or severe, with feebly or fully developed symptoms, and with or without vasomotor disturbances, provided examinations, properly made, give us changes in arterial tension, or other vascular or cardiac functional or organic changes, as true cases of stenocardia.

The first and most marked symptom we must consider is pain. However, this must be differentiated from intercostal, neuralgic, and rheumatic pains, and from pain resulting from various accidental causes. The pain is sometimes simple discomfort; again a sense of oppression or compression, varying in degree and severity; sometimes sharp and lancinating, sometimes like that of a sword pushed through the sternum and back; sometimes there is a feeling of unbearable weight, accompanied at times by a sensation of cold in the same region; sometimes there is a feeling of distension or bursting within the chest, or, again, a sensation of burning. This most pronounced symptom of stenocardia, however, is usually referable to the heart, but not always beginning or ending in the heart, and sometimes, by reason of greater intensity at other points, is not clearly appreciated as a heart pain.

In the mildest forms, the pain usually begins over the epigastrium, the lower end of the sternum, or the mid-mediastinal space, and from here it passes upward toward the neck and to the left arm, terminating at the left shoulder, elbow, or one, or several, or all of the fingers. At times it radiates into the right chest and right arm also, or, passing downward, radiates toward the abdomen. As the attacks grow in severity, the accompanying symptoms grow

[1] Dudgeon's. [2] von Basch's. [3] Oliver's.

in intensity. The feeling of constriction or fulness of the throat becomes almost a choking one, and the sensation of compression of the chest and epigastrium becomes absolutely unbearable from a sense of superhuman weight to be overcome. The sharp pain appears like that of a sword-blade, with the hilt pushed against the chest, the handle even being twisted about to intensify the suffering. Anxiety and restlessness, a sense of fear even of some impending catastrophe and death, pallor of the face and coolness of the extremities, followed at times by irregular suffusion of the face, and sudden, profuse perspiration, and even loss of consciousness supervenes. The fingers of the left hand, sometimes the entire left upper extremity (less often those of the right hand or extremity) become numb and useless for a time. The attack may become modified, the pain being more bearable for a short time, and then may return in full force, continuing in this way for from one to several days in very rare instances. Usually the attacks last from a few seconds to a few minutes.

In persons subject to the attacks, pulmonary congestion, with expectoration of frothy, bloody mucus, lasting from a few hours to days, may occur.

Examination of the heart may reveal no irregularity, but even in such cases I have always felt that the heart seems to be acting against depressing influences; its action is not free as it should be. In characteristic cases, the heart beats irregularly, sometimes tumultuously, with alternate feeble and strong beats, very suggestive of the condition of fibrillar contraction of the cardiac muscle. At times it seems to beat feebly, being almost arrested in its action, then beating irregularly, and gradually returning to its previous condition. Less often there is simple tacchycardia, with feeble beats. The pulse, as already said, may indicate nothing; again, it may be small and thready, or may indicate increased arterial tension, or may be irregular and slower, or even faster. In cases in which the attack goes on to a fatal termination, syncope soon supervenes, the heart gets feebler, edema of the lungs, with cyanosis and coolness of the surface, follows, and, with the usual symptoms of this complication, life quickly ebbs away.

Beyond these usual phenomena, other more marked vasomotor disturbances may occur. Thus the symptoms described under the separate heading of "Angina Vasomotoria of Nothnagel" may be superadded to the ordinary symptoms. As a rule, the symptoms are associated with attacks produced by exposure to cold. We have general spasm of the peripheral vessels, pallor, cyanosis, and subnormal temperature, and a sense of stiffness and inability to use the extremities. At times faintness or unconsciousness follows. This condition, supposed to depend upon diffused spasmodic contraction of the peripheral arteries, is found, according to the author, in cases in which the pulse remains regular, and there are no signs of cardiac disease.

There is still another form of vasomotor disturbance which may or may not be associated at times with cases of stenocardia, and that is the form called by Jacob "angiospastic cardiac dilatation," in which any of the internal viscera, the liver, spleen, kidneys, or lungs in most cases, may be the seat of engorgement. The kidneys, if not the principal seat of the lesion, sympathize with the system, and the albumin and casts temporarily eliminated show their passing congestion if nothing worse. There may be signs of pneumonia or pleuritis, which disappear in a few days, and there may be some edema. The temperature is slightly elevated. The condition may last from a few hours to a few days. The heart is usually acutely dilated, even when dilated before. The pulse is, of course, small. This condition may assume all forms, from the mildest to one threatening the life of the patient. In very mild cases, engorgement of the liver or lungs, when slight, is overlooked, and frequently in severe cases the condition is mistaken for acute infection from old ulcerated valves or chronic endocarditis. The life history of these cases is exceedingly variable. Some few patients never have but a few attacks, and die in an attack of moderate severity. A small number after having been subject to a few attacks remain well, and years after upon the first return of an attack of greater severity succumb to the attack. In a fair number of cases, which number is now being increased, the attacks are induced to subside, and the patient enjoys years of freedom. In others the attacks may last for an indefinite number of years; in some, slowly increasing in severity, in others varying to and fro, the patient's life being dependent upon his general cardiac and constitutional condition.

The treatment of the patient may modify the career of the disease, and the occupation of the patient may be such as to intensify it. If the sufferer cannot avoid the mental or other exciting causes of the disease, the symptoms and number of the attacks will be dependent really upon the exciting cause, rather than upon the lesions and underlying causes. And it is this psychical element that is largely responsible for making cases appear so contradictory as concerns symptoms and lesions. Prodromal symptoms exist in quite a number of cases. Frequently a feeling of fulness or slight sensation of pressure or discomfort or sense of uneasiness is felt in the epigastrium, lower or midsternal regions, before the symptoms of stenocardia set in definitely. Many patients recall that

these irregular and uncertain sensations existed for months or years, appearing at long intervals for a few seconds at a time, long before they became the subject of stenocardial attacks. It becomes an open question whether such prodromal symptoms may not really be part of the attack itself. But in many instances, by resting or resorting to medication, or by getting the body warmed if it has been chilled, or getting rid of the exciting cause, whatever it may be, the real symptoms are averted, or if too late to abort the attack, it is made more moderate.

Diagnosis.—The seat and character of the pain and remaining symptoms, especially if arterio-sclerosis, with or without cardiac valvular disease, exist, makes the diagnosis certain. If cardiac disease is not present and there is increased arterial tension, the diagnosis is not difficult. In gouty subjects, even if the heart is not apparently involved and the arteries are thickened or pressure increased; and even if there be no apparent change in the arteries, gout with characteristic symptoms is very suspicious of stenocardia.

In all forms of myocarditis, whether primary or even secondary to renal disease, the symptoms should be considered as strongly indicative. Hypertrophy with or without dilatation of the heart, and especially cardiac dilatation, makes the diagnosis fairly certain.

The occurrence of the symptoms in men over forty years of age, more especially with aortic disease and arterio-sclerosis, is a combination of conditions that makes such symptoms especially significant and unquestionable. In cases in which the symptoms are as yet few, and the finger and ear cannot detect changes in the arteries and heart, the diagnosis should be kept in abeyance until the sphygmomanometer, arteriometer, and sphygmograph have been brought into requisition. It is a question I have not yet decided as to how far the capillary pulse instrument will be useful, but it appears to me that in time with perfection of the apparatus, it should have great value.

The differential diagnosis from that rare form of stenocardia due to the use of tobacco must be based upon the history of the patient and the peculiar cardiac condition accompanying chronic tobacco-poisoning. In a case of cardiac valvular disease, the differential diagnosis would be difficult. If, however, such a patient smoked so much as to make himself liable to stenocardia, the probability is that the symptoms would be indicative of true stenocardia; however, he might coincidently suffer from tobacco-poisoning.

The differential diagnosis which Huchard makes between true and pseudo-stenocardia, is for the most part untenable, and I feel certain that in following tradition he has adhered to the arbitrary division so long made by other equally great authorities. To maintain that "spontaneity," being "often periodical or nocturnal," "pain less severe," "sensation of distension," "duration one or two hours," are essential features belonging to the pseudo types, is by no means in accordance with fact, for true stenocardia may be characterized by the same symptoms. The occurrence of attacks in a young woman of an hysterical temperament, free from cardiac disease, taken in connection with a lack of the usual succession of symptoms but with the existence of dyspnea, favors the diagnosis of pseudo or hysterical stenocardia.

Prognosis. — The prognosis depends upon the nature of the cardiac lesion and condition of the blood-vessels, and upon the severity of the attacks. Patients may go on having fairly severe attacks for years even with extreme lesions, while in other cases moderate attacks prove fatal. Balfour relates a singular case, but it was in the person of an old man who, having had an attack, was free for ten years and succumbed to the next. In seeking to fix the future of such cases it is wisest first to determine how far the patient's condition and attacks are amenable to treatment, for much depends upon the vascular and cardiac condition, and the ability to moderate the attacks. But even in desperate attacks with edema of the lungs, we must seek to keep up the heart's action until the edema has subsided, for the spasm may have passed off and the patient's only danger be from the effects of the edema.

The patient's environments and the extent of his means to purchase comforts and save himself from the injurious effects of work, temperature and surroundings are additional factors that tend to regulate the probable length of life. Considering the large number of persons so afflicted, the prognosis while earnest should never be made too grave.

Treatment.—The treatment should be regarded under three headings, (1) prophylaxis, (2) general treatment, and (3) of the attack itself.

Prophylaxis.—A great many attacks are excited by the influence of cold. The avoidance of cold water, and even of tepid water to any large surface of the body on account of the succeeding chill, must be advised. Such patients must wash their bodies one part at a time, and have that part well dried and covered before proceeding to the next. Even the keeping of the hands well gloved, maintaining warm feet, protecting the mouth and nose from the sweeping cold wind or air are precautions that will save the patient from many an attack. The regulation of the patient's life and habits come under this category. Avoidance of mental worry and emotion, of over-exertion, and even needless exertion at times, is imperative. The patient must walk with deliberation, and the combination of talking and walking may be too great a

strain for the heart until it is improved by general treatment. Tobacco should be absolutely interdicted, and all spirituous liquors as well. In persons who have always taken wine, a small quantity of a light Moselle or claret, preferably Moselle, may be taken diluted at dinner or, exceptionally, if the patient feels weak and in need of it. Over-indulgence in food must be guarded against. If the patient has the prodromal symptoms of an attack, the seeking of shelter, of a warm room, of warmth to the surface, or resting or lying down, may ward off an attack.

General Treatment.—This must have two objects, first, the improvement of the heart and blood-vessels, and second, the relief of engorgement in the internal viscera and capillaries.

For the improvement of the heart and blood-vessels, the use of potassium or sodium iodid in from 3- to 5-grain doses kept up for months is an old remedial agent of a certain, though not always satisfactory, value. The treatment by saline baths and by the Schott method of exercises, has a most potent effect in improving the condition of the cardiac muscle and vessels, and appears to have a direct effect in making the attacks less numerous and severe, and even in causing them to cease during a period of months or years.

The exercises with resistance or Schott movements should be carried out in the way indicated by me in a previous paper before the general meeting of this Academy. The movements are made in such a manner that the attendant can easily resist or hinder the movement, and the patient in seeking to complete the movement must overcome the resistance of the attendant. The movements must be made with especial care and caution in these cases, and the resistance at the outset must be at a minimum.

The artificial saline baths should contain from one to three per cent. of salt, and from one-fourth to one per cent. of chlorid of calcium, and should gradually be strengthened by the addition of carbonic acid. By a process now in the last stages of completion, it will be possible to prepare the saline effervescent and saline effervescent flowing baths by means of a simple apparatus, so that the carbonic acid will be intimately mixed with the water. Details of the manner of administering the baths and exercises for this and other cardiac conditions will appear later.

For the relief of visceral and capillary engorgement we may resort to medicinal agents. Although the baths and exercises do this to a marked extent the administration of a half-grain of calomel (well triturated) thrice weekly at bedtime, succeeded the next morning by a dose of Carlsbad sprudel salts, adds materially to the effect.

After the visceral engorgement has been much relieved, we can now use our nitrites, and, in some cases, nitroglycerin; for until visceral congestion is relieved it is only playing hide and seek to try and relieve the capillaries which are immediately clogged again by the nearest congested viscus. Having accomplished this, we will now find the cardiac tonics, spartein, strophanthus, strychnin, valerian, and, in suitable cases, digitalis, of the greatest utility.

The general tendency to anemia and defective oxygenation must never be lost sight of, and general tonics, including the use of oxygen gas, as recommended by A. H. Smith, will be of excellent service.

The Attack.—The treatment of the attack, includes the use of nitrite of amyl in from 3- to 5-drop doses, poured upon a handkerchief, or taken from a glass pearl in similar manner, and inhaled.

The use of nitroglycerin in 1–100 grain doses is of less rapid efficacy. It may be repeated once in three or four hours, or at even longer intervals. In a severe attack it may be given at half-hour intervals, but should be given guardedly. In some patients the effect of nitroglycerin is immediate, in others very slow. Hypodermatic injections of morphin, with or without atropin, is often of great service.

The use of ether or chloroform, with or without valerian internally, relieves moderate spasm, and is somewhat stimulating. Local counter-irritation—by issue, sinapism or blister over the precordium, or the actual cautery over the precordium, or applied over the hepatic region in some cases, and the application of electricity, may be resorted to. Sometimes the local application of the hot water bag is of service. Exercises given with extreme caution has in my own hands sometimes given some relief to the acute symptoms.

To recapitulate, I wish to emphasize that the treatment should not be haphazard, but *systematic*, if we would accomplish anything; and considering the suffering entailed by this disease and the danger involved, such attention upon our part is essential and called for.

First we must remove *exciting* causes of every kind, and next relieve the visceral engorgement that has long existed because the heart was too weak and the vessels not elastic enough to keep up proper venous circulation, and, having gotten rid of the vis-a-tergo, we relieve the capillaries by appropriate remedies and coincidently stimulate the heart, which can now act better because its capillary embargo has been raised. The success of the treatment depends upon the following out of the sequence just suggested. The comfort to be guaranteed to the patient, and the prolongation of life, are sufficient rewards for patient toil and scientific interest. I add a few cases taken at random from a

large number, illustrative of the manner and results of treatment.

CASE I.—A. S., aged fifty years, a Russian, came to Nauheim in the summer of 1895. Family history negative. Had syphilis. In 1875 had severe rheumatism and marsh fever. Lived in Sardinia. In August, 1893, had his first attack of angina. Diagnosis of stenocardia by Professor Müller of Budapest, by whom he was put upon iodid. In October, 1893, iodid was stopped, and patient ordered a cold-water cure at Budapest. He grew worse, and the treatment was discontinued. He went to Professor Oser, in Vienna, who said he had gastric trouble. In November, 1894, was seen in Vienna by Abeles and Nothnagel. Nothnagel recognized his cardiac disorder, diagnosticating gallop-rhythmus with myocarditis. Next saw Professor Muri of Bologna, who renewed the iodid treatment. The prolonged iodid treatment and his illness had made him profoundly anemic. He now suffered from constant attacks of angina most of the day. The attacks came on after every meal and every movement. Even while asleep he would not be entirely free from them. The simplest food—even milk—caused an attack. Finally they became so intense that the patient often became hysterical and cried with agony. During this time he was in bed for months. He noticed that if he yawned severely he got relief. Pain usually began in the epigastrium, then went upward and across the chest into the left arm and hand and over the left shoulder slightly; it rarely went into the right side, and if so, was not so severe. In February, 1895, he consulted Dr. Secchi and others in San Remo, For two months previously he had been again in bed and taking iodid. Secchi now stopped the iodid and ordered strophanthus during April and May, 1895. Nothnagel came to San Remo in May, 1895, and advised him to go to Bad-Nauheim as a last resort, and in July he came there.

From July 4th to 14th he was given nine saline baths at a temperature of 32° to 31° C.; duration eight to eighteen minutes. From July 16th to 30th there were administered twelve effervescent saline baths at a temperature of 31° C.; duration eight to twenty minutes. August 1st to 12th he took nine effervescent flowing baths at a temperature of 29° and 30° C.; duration twelve to twenty minutes. To the saline baths from one to two liters of *mutterlauge* had been added.

After the first week daily exercises with resistance were given. He made a complete recovery to the extent that all the angina attacks disappeared.

In August, 1896, he returned to Nauheim and reported to Dr. Schott that he had remained free from attacks, barring a slight suggestion of an attack in the shape of mild prodromal symptoms. He had taken no treatment of any kind meanwhile.

He repeated his treatment in the summer of 1896, and in the fall reported himself, in a letter to me, as being free from every symptom.

CASE II.—X., aged forty-three, American, came to Nauheim in the summer of 1896. Family history: Father died of cerebral apoplexy. Mother has cardiac disease. Sister died of chronic Bright's disease.

Patient never had had rheumatism or syphilis, and was well up to three years ago when he began to complain of dyspnea on exertion, had precordial discomfort, and was anemic.

Six months ago began to complain of attacks of angina, which came on by day and by night. Attacks occurred at times without apparent cause, and always under the influence of cold. Diagnosis of aortic stenosis had been made in 1893. After two weeks of saline baths with *mutterlauge* (1 to 3 liters), temperature varying from 33° to 31½° C., the attacks ceased, and up to November, 1896, had not returned.

CASE III.—X., aged sixty-one years, native of Batavia, came to Nauheim in 1895. No history of rheumatism or syphilis. Excessive smoker. For years patient had worked under pressure in a hot climate. He maintained good health until he suffered severe shocks from family bereavement. He then began to complain of vertigo and headache, and of malaise, weakness, loss of appetite, and marked dyspeptic symptoms. He suffered from attacks of cardiac arrhythmia, which were followed by a sensation of faintness and slight syncope. He had more or less sharp and lancinating pain in the precordium, going into left shoulder and passing down to left elbow. This pain was brought on by any exertion or slight excitement. The noises of his beating heart awoke him at night. Examination revealed aortic disease (stenosis and insufficiency), and although he discontinued smoking upon his doctor's advice, he did not improve. He left Java and came to Holland in the winter, and rested in Holland for four months, where he was treated without result. After this treatment, in the summer of 1895, he came to Nauheim suffering as before. Examination revealed an intermittent arrhythmical heart, myocarditis, and general atheroma, aortic stenosis and insufficiency. Patient complained of angina, dyspnea, and symptoms as above, and was unable to walk without distress.

After six weeks' treatment by baths alone his symptoms disappeared. It was noted that whereas before the individual bath his pulse was 80 to 82, afterward it was 66 to 68. He remarked to me: "I am wonderfully better." He was able to go about without pain, and his heart had become reduced from 15 cm. to 12½ cm. in its greatest transverse diameter. The improvement was maintained throughout the winter of 1895–1896, and in the summer of 1896 he returned to Nauheim and repeated the treatment. He left in most excellent spirits and with no symptom of discomfort.

CASE IV.—Miss X., aged thirty-six, school teacher, German. Mother subject to chronic gout. At seven years of age patient had had pleurisy and periostitis of left chest. Fairly well till her sixteenth year; became anemic, and for two years had epileptic attacks. Then suffered from chronic bronchitis for two years, with a slight return of epilepsy. Was profoundly anemic all this time, and suffered from chronic malarial poisoning. Menses appeared (but scanty) at nineteen

years of age. From her twentieth to twenty-eighth year she was anemic and continued to have constant headaches, pains in joints, and swelling of legs. When thirty-one years of age she suffered a sudden shock, from which time her heart's action became intermittent and she had a frequent sense of intense precordial pain. She was examined in 1891, and a distinct mitral regurgitant, together with a double basic murmur, was recognized.

She reported that in the spring of the year her cardiac symptoms were always most severe. The heart action was always most intermittent at that time, so as to make her feel faint very often during the day. She could not sleep, and the precordial pain was accompanied by the sense of impending danger and death. She tried rest and mountain air for three summers, with only temporary improvement.

She came to Nauheim in 1894.

From July 7th to 29th she took fifteen thermal saline baths, temperature varying from 32½° to 32° C.; duration, ten to twenty minutes.

From July 30th to August 6th she took six thermal effervescent saline baths; temperature, 31° C.; duration, eight to twelve minutes.

Although she left Bad-Nauheim, having gained eighteen pounds in weight, yet the conscious improvement began only a fortnight after she reached her home. She remained well the entire year, passed the spring without any symptoms, and when I examined her in July, 1895, she had a feeble mitral regurgitant murmur, but a perfectly regular heart.

She repeated her treatment the next year, 1896, and reported herself able to go about her duties all the year without hindrance.

IRITIS AND ITS TREATMENT.[1]

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It is not my purpose this evening to go into the different forms, nor to enter into a study of the etiology of the various kinds of iritis, but I desire to call the attention of the Society to a case of simple plastic iritis recently treated at the eye clinic of St. Mary's Hospital, not on account of its rarity, but because its history is typical of a number of cases of neglected disease which are seen at every hospital.

G. D., aged thirty-two, came to the clinic, March 17, 1896, with the following history: Always had good vision until one week previously, when he awoke one morning with considerable pain in the right eye and intolerance of light; nevertheless, he managed to work that day and the next, his eye being protected by a shield. On the evening of the second day, the pain being then very great and the eye greatly congested, he applied to an apothecary who gave him some drops, presumably sulphate of zinc solution. It is needless to say that the drops aggravated all the symptoms, and after two visits to the apothecary, he came to the eye clinic at St. Mary's Hospital.

On examination a typical case of iritis was found, the iris firmly adherent to the anterior capsule of the lens, the anterior chamber filled with flaky lymph, and the media so obscured that it was difficult to see the fundus. No deeper inflammation had, however, as yet set in.

As I have said, this history is not at all unique, and I am sorry to add that it is not always apothecaries who commit these blunders. Yet of all the inflammations to which the human body is liable, iritis should be the one most readily recognized. The whole progress of the disease is exposed to view and the symptoms are characteristic and well marked. Certain cases of iritis might be mistaken for more serious eye troubles, such as glaucoma, but there is no excuse for the mistake of supposing it to be simply a conjunctivitis or "cold in the eye," as was apparently done by the worthy apothecary in the case which I have related.

The pain in iritis is very characteristic. It commences with a heavy deep pain as if the eyeball was being pressed upon by the fingers and this pain grows more and more severe as the inflammation progresses and is accompanied by shooting pains which usually radiate along the branches of the fifth nerve. Supra-orbital neuralgia is thus a prominent symptom, but it is accompanied by the deep pain in the eyeball itself. Gradually the pain becomes more and more neuralgic, intense paroxysms coming and going and increasing toward night. Frequently these are accompanied by flashes of light. All these symptoms are of intra-ocular pressure, and an active inflammatory process. The pain is totally different from that of any inflammation, however severe, external to the eyeball.

Not less characteristic are the objective symptoms. Before any lymph is thrown out which is apparent to the eye, the iris is discolored and contracted and begins to lose its power of movement; the pupil loses its shiny blackness, there is deep ciliary injection, and a dull appearance of the cornea. The immobility of the pupil is almost pathognomonic. If we exclude certain nerve troubles which in no other way resemble iritis, immobility of the iris and contraction of the pupil necessarily indicate some morbid process going on in the iris itself. When the disease has progressed to the formation of lymph and apparently the entire fixation of the iris, there can be absolutely no doubt of the nature of the disease, but even in the very early stages there is little excuse for a mistaken diagnosis.

I have referred only to the most characteristic symptoms. Photophobia which is marked is common to all inflammations of the deeper tissues of the eye. So, too, is injection of the conjunctiva, though to the

[1] Read before the Phila. Northern Med. Soc., October 16, 1896.

educated eye there is marked difference in the congestion which accompanies iritis from that resulting from any other cause. It is so with the other symptoms set down in books. There is one condition, however, which may occasionally puzzle the physician who has had little experience in eye troubles. I have seen cases of glaucoma in elderly people which were complicated by an inter-current attack of iritis, and in these cases the symptoms of iritis are to a certain extent masked by the presence of glaucoma; and again, in inflammatory glaucoma there is frequently an exudate from the pupillary edge of the iris. While the acuity of vision is lost in both diseases, the decrease is much less in iritis than in glaucoma, and to the educated touch, as a rule, the tension of the ball furnishes a ready guide to diagnosis. The fact that iritis may occur during the progress of glaucoma should make us cautious in the treatment of the former disease in elderly people, where there may be a history of approaching glaucoma. In serous iritis we should also be on our guard, lest in curing the iritis we increase the blocking up of the canals of the ciliary body and thus increase the glaucomatous condition.

In my opinion it is a matter of very little practical importance to determine whether an iritis is rheumatic, scrofulous, cachectic, or syphilitic in origin. As far as the treatment is concerned the same course is adopted in my practice, whether the patient confesses to syphilis or not. Of course, if iritis occurs during the progress of a rheumatic attack, or if there is a distinct history of rheumatism or gout, then remedies directed to these conditions should be employed, but taking the average case of iritis, with which we are all so familiar, the treatment should be conducted on the same general grounds, no matter what we have concluded the etiology to be.

The treatment of iritis has progressed but little since the early days of ophthalmology, and for the simple reason that if adopted early, the old fashioned treatment is eminently satisfactory. As in the days of our fathers, it consists essentially in the free exhibition of mercury, of local sedatives and derivatives, and in the free use of atropin. Mercury is best administered by inunction, the system thus rapidly coming under its influence. It should be remembered that the general condition of those attacked by iritis is usually poor, and that the stomach is not rarely irritable, and the digestion impaired. Internal medication should therefore be avoided as much as possible, except so far as is useful to build up the system and correct disorders of digestion. The use of mercury should be pushed to the point of tolerance. "Gently touch the gums," is the good old rule which is probably not very far wrong. Iodid of potassium is of little use in the earlier stages of the disease, but must be used after the inflammatory stages have passed, and when the mercury has been pushed almost to the point of salivation. If, unfortunately, your patient should object to inunctions, then some other form of mercury than the ointment must be used, the protiodid or bichlorid internally, or, better still, the subconjunctival injections as used by Abadie.

Local treatment to reduce the inflammation is very efficacious. I usually employ the Hurtelope or Swedish leech applied to the temples. Hot water fomentations applied to the eyeball are useful in allaying pain, and possibly in lessening the congestion, and should be freely used at frequent intervals and as hot as can be borne. A boric acid solution should also be employed.

But the chief treatment is the use of atropin, which should be administered both early and late, and in sufficient strength to thoroughly dilate the pupil, and at such frequent intervals as to maintain the dilatation. In the early stages the use of a solution of four grains to the ounce of the sulphate of atropin, applied every four hours, or even more frequently, is necessary to bring about this result. I have found good effects from combining cocain with the atropin in the earlier stages; it lessens the pain and aids in the more rapid dilatation of the pupil. After full dilatation has been obtained the cocain may be dropped, but the use of atropin, until all inflammation of the iris has disappeared, is absolutely imperative. In uncomplicated cases, which are seen at an early stage, the progress is very favorable. With neglected cases, complications are very liable to occur. The most simple is posterior synechia, which is altogether too frequently seen in eye-clinics, but it is unnecessary at this time to more than refer to the fact that most serious complications are more liable to follow neglect or maltreatment.

I have been greatly struck by the tolerance of mercury evident in many cases of iritis. I have seen numbers of cases which, as far as I could determine, were non-syphilitic, which bore readily the absorption of two to three drachms daily of mercurial ointment, for weeks, and even months, with no symptoms of ptyalization. In these cases, the mercury was continued until the eye whitened and the evidence of deep injection lessened. Mercury, in these cases, acted as a powerful tonic, the general health improving even more rapidly than the inflammation subsided, and it is in these cases that the most successful results are seen. I have already referred to the necessity, in many patients, of attending to the general health. As the majority of cases of iritis occur in patients whose systems have been run down

by the presence of syphilitic or other poisons, the Turkish bath is especially useful, and tonic treatment should never be neglected.

In conclusion, I have only to impress upon you the facts that iritis is readily recognizable and is a most tractable disease if taken in time. The treatment is simple and effective, and there is no reason why nearly every case of iritis coming under competent care should not make a good recovery.

MENTAL COMPLICATIONS FOLLOWING SURGICAL OPERATIONS.[1]

BY J. T. WILSON, M.D.,
OF SHERMAN, TEXAS.

THE subject of mental disorders produced by or following surgical operations has not been discussed to any great extent, and until within the past few years only a passing notice has been given it. Dr. T. Gaillard Thomas reported six cases to the New York Academy of Medicine in April, 1889. He could find only twenty cases recorded previous to that date, and states that "prior to 1887 there was nothing in the way of literature on the subject." After Thomas called attention to this complication, quite a number of cases were reported, but I find in my investigations in this field very few complete histories accompanying these reports. This important part of the subject has been much neglected, and therefore a study of the literature is somewhat disappointing. The various mental disorders of traumatic origin, if I may use the expression, are not so rare as is supposed, and I presume every surgeon has met with cases during his career. They are sufficiently frequent to elicit careful consideration and special study in order that they may be prevented, or properly treated, when they have developed.

It is a strange fact that while surgical operations will sometimes cause serious mental disturbance, on the other hand, these same operations will sometimes cure them, and especially is this the case with some melancholiacs. Many females laboring under attacks of melancholia caused by some disease of the genital apparatus, have been cured when relieved of the physical defect by operation; others have been much improved, and yet others have received no benefit.

The question may very properly be asked, why a surgical operation should produce an attack of insanity. This can no more be answered satisfactorily in every case than can the question why some persons become insane from the many other causes to which it is attributed; for in most cases these mental complications are a surprise, and no good reason can be given why they should follow; in others, however, a logical explanation might be arrived at. If the patient is a high-strung, nervous individual, easily excited and unable to bear pain, the great and increasing dread of the anesthetic, or the thought of the operation, or both, will so affect him that he will lose control of the will-power, and the explosion will come after the operation and reaction from anesthesia. In many of these cases, probably a majority, there is an hereditary taint or a strong neurotic tendency. I think it has been the observation generally that females are more subject to these mental outbreaks than males, not because they cannot endure pain with equal fortitude, but because they are, as a rule, more nervous, more excitable, and more susceptible to the extremes of mental emotion. Nervous explosions, traceable to operations upon the female genitalia, are of comparatively common occurrence, because a greater number of operations are now performed in connection with these organs than upon other portions of the body; but this sequel is by no means confined to operations upon these parts. Polk has stated that he preferred not to operate upon patients who had previously shown an abnormal mental activity.

To anesthesia has been ascribed the cause of the trouble in some instances, but in these cases it is very likely that there is an insane temperament in the background. Anesthetics, too, may complicate the case by their effects upon various organs, which may combine with the other causes to produce a mental perturbation. Every anesthetic produces a more or less powerful depressing effect upon the heart. Cases are frequently recorded in which albuminuria has been discovered after chloroform and ether-anesthesia, the urine previously having been free from albumin. I have myself observed a hyperemia and torpidity of the liver, with febrile excitement and mental exaltation, following chloroform anesthesia. Chloroform and ether produce more or less anemia of the brain, or a venous stasis which may be very slow in being relieved; the patient may be feeble, and the delayed recovery from the effects of the anesthetic may end in confusional insanity. A very nervous person is liable to suffer from great dread of the operation, and often resists the anesthetic, or becomes wild and uncontrollable under the attempt to administer it. He often requires a greater quantity and it takes longer for him to become anesthetized, which has a more depressing effect. He remains for a greater length of time under its influence, and when he recovers from it labors under greater prostration; the shock is more profound, and prolonged nausea and vomiting may follow. He loses self-control, fears that he cannot recover, and, becoming absorbed in these thoughts with such in-

[1] Read before the Southern Surgical and Gynecological Association at Nashville, Tenn., November 10, 1896.

tensity, in his already weakened nervous and physical condition, his mind gives way. From my researches, I learn that it is very rare for the patient to recover from the effects of the anesthetic with this mental disorder established, or evident to the observer; but it may come on suddenly or gradually within twenty-four, thirty-six, or forty-eight hours; or several days or weeks may elapse before its complete development. It is not always after a grave operation that these sequences occur. I have seen a violent outbreak in a patient from whom a small fatty tumor was removed. This patient, however, had had a previous attack of insanity.

There may be disease of some of the other organs, or their functions may be interfered with. The inebriate, and persons long addicted to the drug-habit, do not bear operations well, as a rule, and these conditions may be put down as predisposing causes of mental alienation after shock from surgical operation.

Savage of London read a paper before the British Medical Association, at its fifty-fifth annual meeting, in which he states that "in persons who are predisposed to insanity, intoxication with mineral, vegetable, or organic poisons, and the use of alcoholic or anesthetic inhalations, may be followed by acute delirious mania, from which the patient may recover or may lapse into dementia, or even to the progressive paralysis of the insane." Dent attempts to show that mental impressions may be produced in three ways: "by anticipation, by actual operation, and by after-effects." Mairet thinks, "first, that it is in those individuals who are predisposed by heredity or other grave causes—alcoholism, infectious diseases, etc.—that surgical operations give rise to insanity; second, in the constituent elements of an operation that might act on the brain were two most important factors, namely, the anesthetic, and the degree of surgical traumatism, with its after-effects, of which disturbed nutrition plays a very important part; and third, when predisposition also is considerable, the anesthetic alone may produce insanity, or it may result even after minor operations. It is, of course, necessary to take into consideration the mental state of the patient prior to the operation, especially in those graver ones where questions of life or death are frequently involved."

All diseases that have a tendency to exhaust or impair the nutrition of the nerve-centers weaken the mind and render it less able to withstand the great strain it may be called upon to sustain. Poorly fed, badly nourished subjects come under this head.

The antiseptic drugs used for dressing wounds have been accused of causing mental disturbance, but I have never seen a well-authenticated case from this cause. Septic absorption is sometimes an accompaniment, if not a cause. The mental derangement from septicemia, pure and simple, can, however, usually be differentiated from others.

The manifestations of mental disorders following surgical operations are not different from the same disorders produced by other causes. They usually occur in the form of confusional insanity, mania, and melancholia, while very rarely we may have paranoia and dementia. We can only classify the different manifestations of insanity by their symptoms.

The mind has a powerful influence over the functions of the organs of the body, which, in turn, when interfered with, will react upon the brain and nervous centers. The outbreak may be sudden, and may begin with wild delirium; more frequently it comes on gradually, showing itself as a delusion that cannot be dissipated, and this is followed by incoherent conversation. The patient becomes restless, and is troubled with insomnia. Impatience is succeeded perhaps by violent excitement, which passes beyond control except by the employment of absolute force; or there may be only fixed delusions and insomnia, which occur in many cases, and are often the first symptoms to attract attention to an abnormal condition of mind. On the other hand, the patient may become quiet, or morose, and refuse to speak, or to notice his surroundings. There may be a moderate rise in temperature, or it may be subnormal. In the violent form, there may be a higher temperature, increased pulse-rate, dry, coated tongue, loss of appetite, and impaired digestion and constipation, with more or less loss of physical power. Acute mania is generally accompanied in the beginning by febrile excitement. If the patient is violent and restless, and laboring under great nervous tension, the functions being all interfered with, the temperature is liable to rise with the excitement and fall with its subsidence.

In septic poisoning, and in the toxemias, we always have a greater or less degree of febrile movement. Sometimes after a violent outbreak, with continued excitement for several days, signs of exhaustion appear, and stupidity and coma gradually come on.

There can be no difficulty about the diagnosis of mental disturbance, or an attack of genuine insanity, after surgical operations; the manifestations are plain enough, but we cannot always be so positive about the classification of the trouble. It is not difficult either, as a general thing, to distinguish insanity from the delirium of septicemia, for while there are cases of insanity that are probably the result of septic poison, as has already been stated, they can generally be discriminated. The antecedent history is of value in these cases. If there be no hereditary history of insanity, nor a history of a previous at-

tack, there being no organic disease present, and the subject being robust and of good constitution, the prospect for recovery of both mental and physical health is fair. If, however, there is an hereditary, or strongly neurotic tendency, and the patient is in feeble health, the danger is great. Digestive disturbances, feeble pulse, and a tendency to stupidity and coma are always very grave symptoms. The cases of so-called confusional insanity of some modern writers, when there is no organic disease, or septic complications, usually recover after certain lapse of time. Under these conditions the affection is entirely functional, and is not generally dangerous to life. Acute mania, if it does not exhaust the patient, is less unfavorable than melancholia; the former is rather more dangerous to life, while the latter tends to a permanent impairment of the mind. The percentage of recoveries from dementia is small.

The danger to life from insanity, after surgical operations, is probably greater than from any other cause, except malignant disease. My own experience, both from observation and study of a comparatively limited number of cases, has taught me that the prognosis is not very favorable, as a majority of the cases terminate in death, or permanent mental alienation. Any mental disturbance, coming on after a surgical operation, in a patient who had not suffered from a previous attack, I should look upon with apprehension. Those systems which are poisoned by chronic alcoholism, or by the use of drugs, do not seem to have the power of resistance that persons do who are free from the effects of these depressing influences. In view of the light we now have upon this subject, the knowledge gained from personal experience, and from the literature bearing upon it, it is the duty of the surgeon to have this unfortunate complication in mind whenever he decides to perform a surgical operation, whether it be a minor or major one. Cases of sufficient number are in evidence to prove the danger from even the most trivial operation, and he should always be on his guard. In obtaining the histories of our surgical cases, the antecedent mental and nervous peculiarities should be taken into account. We should be extremely careful and watchful of those patients upon whom we operate who have an hereditary tendency to insanity, and of those who are unusually nervous, and who submit to an operation with great dread and even protest. Careful preparation should be given them in the way of cheerful surroundings, reassuring conversation, nerve sedation, and plenty of sleep, before the operation. Urgent operations cannot be delayed, but the patient can be placed in the best possible physical and mental condition in the short time given for preparation. There are some operative cases in which every moment's delay is a menace to life, and the very best must be made of the surroundings. We should do what we can to fortify the patient with hope, and should calm his fears; should avoid making a great display of instruments in his presence, and avoid having too many in attendance. The anesthetic should be administered in a separate room from that in which the operation is to be performed, when this is practicable. When there is no special hurry much can be accomplished by gaining the confidence of the patient; make him even *anxious* for the operation. Prepare his system, and his mind, and relieve him of the great dread of the anesthetic. Impress those with whom he is in constant contact with the importance of cheerfulness in his presence, and with the necessity of keeping his mind from dwelling upon the ordeal through which he must pass. Encourage him to look forward to it as the only probable means of deliverance from his malady. Much can be done in this way to increase the powers of resistance to any complication that might arise. I believe that by such careful preparation we will be able in many cases to ward off this most unfortunate sequel.

CLINICAL MEMORANDUM.

A CASE OF DIPHTHERIA TREATED WITH ANTITOXIN; SUBSEQUENT DEATH FROM ACUTE ASCENDING PARALYSIS.

BY G. M. WELLS, M.D., U.S.A.,
FORT MASON, CALIFORNIA.

ON May 8, 1896, I was called to see a male child, eighteen months of age, suffering from diphtheria. He was a little below the average size, but had previously been healthy. At that time the temperature was 98° F.; pulse a little above 100, but quick and weak; respiration accelerated and shallow; appetite poor; bowels constipated; profuse acrid discharge from nose; faint, sweet odor from breath; glands about lower jaw enlarged, hard, and tender; both tonsils enlarged, with a dirty, grayish-white membrane covering them and the pillars of the fauces, a part of the soft palate, and the lower part of the uvula, and that part of the throat not covered with membrane was excessively red. During the next three days the case pursued a regular course, gradually growing worse, but the child continued to take a fair amount of nourishment. On the afternoon of the 11th the temperature was 101° F. and the pulse 160, weak, irregular, and thready. There was great exhaustion, and the color was bad. The bowels and bladder had been evacuated regularly and without difficulty. There was some difficulty in swallowing. The throat was very sensitive, and bled on the slightest touch. The tonsils were greatly enlarged, and there was great swelling and tenderness of the glands about the jaw and neck. The membrane had extended into the posterior nares, had covered almost all

of the soft palate, and all of the throat as low as could be seen.

The discharge from the nose was profuse, thick, and tenacious, the odor exceedingly offensive, and caused extensive excoriation of the skin. At eight o'clock in the evening, just three days after I first saw the case, I injected between the scapulæ about 10 cubic centimeters of diphtheria-antitoxin containing 600 antitoxin immunizing units. No immediate effect followed the administration of the antitoxin, but on the 12th the child was much worse. The temperature remained about the same, and the heart-beats fell about twenty to the minute, but were so weak that the pulse could only be counted with the greatest difficulty. The condition of the throat and the glands around it remained about the same. At the point of inoculation there was a red spot three inches in diameter, slightly raised and indurated, but not tender nor painful. The color of the child was pale and ashen, and there were a marked stupor and inclination to sleep. On the 13th there was slight general improvement, and on the 16th the child was considered convalescent. Its temperature was normal; pulse was 135 to 140, but strong and full; throat was free from membrane; glands had softened, and were less tender; the color had changed; general appearance of the child was good.

The difficulty in swallowing passed away in a day or two, after which the child appeared to be well, except that it was thin, anemic, and a little weak. No examination of the urine was made, owing to the fact that a specimen could not be obtained. The local and antiseptic treatment of the case were far from satisfactory, owing to the age and irritability of the child.

There was no relapse, nor return of membrane. The child ate well, slept well, ran and played around the house, was bright and cheerful, and seemed to have made a full and complete recovery, and was so reported on the 25th of the month.

About the 1st of June it was noticed that there was some difficulty in walking, and that the child would fall down without any apparent reason. On the 3d it was brought to me, and a careful examination showed paresis of the left lower extremity. This was most marked in the flexor muscles of the thigh, and extensor muscles of the leg. The entire limb was dragged after its fellow, and the toes hung downward. The step with this leg was always shorter than with the other, and it showed signs of weakness each time the weight of the body was thrown upon it. It was further noticed that the child was more liable to fall down when the weight of the body rested on this leg. The child suffered no pain, and was gaining in weight. Actual paralysis took the place of paresis, and gradually extended upward. The trouble soon manifested itself on the right side, and the paralysis was as complete there as on the opposite side. After a day or two the child would not make any attempt to walk or stand alone, and later the limbs hung perfectly limp, and could not be moved at all by the child.

The muscles of the back became involved, and then those of the neck. At first there was difficulty in sitting alone, and the child wanted to be supported in its mother's arms; while later it had to lie down all the time, could not turn over, nor raise its head.

Several days after the paralysis was noticed in the lower extremities, the soft palate became involved again; slightly at first, but later with sufficient severity to cause some regurgitation of liquids, and difficulty in swallowing. There was the nasal twang common to such cases, and some hoarseness as well.

The upper extremities did not become weak until very late in the course of the disease, and it was believed at the time that they were not involved in the paralytic process, and I have had no reason to change my opinion since. The child gradually grew worse until the afternoon of June 13th, when it died without a struggle of any kind. It had a good appetite during its last illness, and took a fair amount of food up to the day of its death. Its digestion was good, it did not lose in weight, and its bowels moved naturally and regularly each day. Although it experienced considerable difficulty in swallowing, it took plenty of liquid in the form of milk and water, and urinated at regular intervals. There was no indication that either the rectum or bladder was affected at any time. Vision was apparently not affected, and both pupils were of the same size and responded to light. The child could talk, though with some effort, until a short time before it died, and it retained consciousness almost to the last. Respiration was natural until a day or two before death, when it became more rapid, shallow, and labored.

There were no indications of disease in either lung. The color of the skin had improved much after the first illness, and remained fairly good until the day before the child died. It then became dark and livid, and assumed a mottled appearance just before respiration stopped. The heart showed signs of weakness after the first few days, which steadily increased to the last. The pulse ran up from a little more than 100 to about 200 to the minute and became so weak that it was often impossible to count. Any movement or irritation of the child would greatly accelerate the pulse, which would become quick and intermittent, showing the irritable condition of the heart. The heart-beat was so weak that it was inaudible, and the pulse could not be counted for some time before respiration ceased, showing that death was the result of cardiac paralysis. The temperature of the child varied but little, and was not above normal at any time. Most of the time it was between 98° and 98.5° F., but one or two times it was a trifle below 98° F. There were no chills, and at no time was the surface of the body covered with perspiration. The child often looked as if it were cold, and required a large amount of clothing. The hands and feet were cold most of the time in spite of all efforts to keep them warm. There was no edema in any part of the body, and nothing to indicate that the kidneys were affected, although, as stated above, I was unable to procure a specimen of urine for examination. Although motion was paralyzed in the greater part of the body, sensation remained normal, and the sense of touch, as well as that of pain, was present up to the time of death. Unfortunately the reflexes were not tested, nor electricity ap-

plied, and as no autopsy was made the exact pathological condition was not ascertained. From the literature at my command I find that acute ascending paralysis is a comparatively rare affection, and as the present case occurred in a child which had previously been treated with antitoxin for the cure of diphtheria, a double interest attaches to it. The exact causation of the paralysis is a question that may be answered more satisfactorily after the antitoxin-treatment shall have been more extensively used and better understood. Of one thing, however, I feel sure, and that is: No beneficial effect followed the administration of the antitoxin. It might have been administered too late in the disease to give it a fair trial, or it may have been administered at a time when the child would get worse irrespective of what treatment might be used, but the fact remains that the child was much worse during the next twenty-four to thirty-six hours than it had been before, and it was not until the end of forty-eight hours that any marked improvement could be noted.

MEDICAL PROGRESS.

An Unusual Case of Lockjaw.—SACHSE reported in the *Centralbl. f. Chir.*, No. 40, 1896, an unusual case of lockjaw occurring without known cause in a male, aged twenty-four years. On waking one morning he found he could not open his mouth as far as usual. The disability increased daily, until he was unable to separate his teeth. For four years he was treated without benefit, until it was discovered that the right upper wisdom-tooth pointed directly outward, and so pressed against the internal pterygoid muscle as to prevent the jaw from opening. It was removed with difficulty. Immediately after its extraction the jaw could be partially opened, and in eight weeks function was fully restored.

Regeneration of the Axis-cylinders of Divided Peripheral Nerves.—ZIEGLER has published in the *Archiv f. klin. Chir.*, vol. li, part 4 (abstract in *Centralbl. f. Chir.*, No. 46, 1896) an account of his laborious investigations into the subject of regeneration of divided nerves in dogs, rabbits, rats, and frogs. According to most histologists and embryologists, an active growth from the divided ends of the axis-cylinder ushers in the regeneration of the cut nerve. Ziegler claims, on the contrary, that the old axis-cylinder plays merely a passive part, and that the real regeneration is a neuroplasma rich in nuclei, which sends out protoplasmic fibrillæ, which later become differentiated into axis-cylinders and the other essential components of a nerve.

After division or constriction of a nerve, degeneration takes place in its peripheral and, to a less extent, in its central end. This degeneration is really a vital act, and predisposes to the absorption of the material of the degenerated fiber; meanwhile the sheath of Schwann—the neurilemma—is stimulated to active growth, and from this springs the protoplasm rich in cells, which absorbs the degenerated fibers, and by the growth and differentiation of which the new nerve is formed. This sheath of Schwann cannot, therefore, says Ziegler, be of connective-tissue origin and nature.

The formation of new nerve-fiber takes place only in the central stump of the divided nerve, in intimate connection with the border of the degenerated area; and the union of an old fiber with a new one is accomplished by means of a nucleated drop of protoplasm, which appears in the end of the old nerve-fiber in close association with the sheath of Schwann.

The differentiation in the new protoplasmic strings appears early. First, as the finer fibers are recognizable, the axis-cylinder makes its appearance. Sometimes two or three of them appear side by side in a single fiber. Their union with the old axis-cylinders is a *secondary* process. After the axis-cylinder appears in the new protoplasm, the medullary sheath becomes differentiated about it, and the nuclei assume a more superficial position, giving the appearance of a surrounding membrane to the newly formed fiber. This grows thinner and becomes the sheath of Schwann.

Experimental Results with Antistreptococcic Serum.—PETRUSCHKY, who reports in *La Presse Medicale*, November 11, 1896, his experiments with cultures of streptococci and an antistreptococcic serum, sent to him by Marmorek, has not obtained the same promising results which that investigator reported. In the first place, he found that a dose stated by Marmorek to be absolutely fatal, killed his rabbits only exceptionally. In fact, two of his own cultures of streptococci, which he had grown for two years, proved to be more virulent, so that their actions were not checked by antistreptococcic serum, although the latter was injected within twenty-four hours of the time of infection. The author, under the circumstances, thinks he is justified in his conclusions: First, that the therapeutic action of the serum is not yet to be recommended in man; and second, that up to the present time there is no certain proof of the possibility of serum-therapy in streptococcic infection.

Chronic Obstruction Produced by a Sharp Bend in the Sigmoid Flexure.—FREY reports an unusual case of chronic intestinal obstruction in *Beit. z. klin. Chir.*, vol. xvii, p. 123. The patient, a young man of twenty, and ill-developed, suffered for eight years with oft-recurring attacks of intestinal obstruction. An attack began with pain and swelling of the abdomen, which was relieved by the passage of wind. In a few days all symptoms disappeared. There were usually alternate constipation and diarrhea. In the course of time, the enlargement of the abdomen became permanent. Besides this dilated abdomen, it was noticeable that twenty inches of a rectal tube passed easily into the bowel, which received, without disturbance, two quarts of water. Peristaltic action could be seen in a large portion of bowel lying across the upper part of the abdomen. This was undoubtedly transverse colon, and the obstruction was considered to be in the descending colon.

At laparotomy, the sigmoid was found to be greatly dilated, presenting somewhat the appearance of a stomach (the sides being reversed), and at the point corre-

sponding to the pylorus there was a sharp bend where the sigmoid entered the rectum, so that a sort of valve was formed, which could be closed by distension of the sigmoid flexure. Four inches of bowel, including the sharp bend, were removed, and a lateral entero-anostomosis was performed. In two months the circumference at the umbilicus had decreased from 81 cm. to 65 cm., although there was no loss of weight.

Several similar cases have been reported, and also cases in which dilatation of the sigmoid flexure had caused symptoms of chronic obstruction.

Frey admits that in the present state of our knowledge a differential diagnosis between these conditions and volvulus is impossible, for the symptoms in each are merely those of temporary or incomplete obstruction. In cases of acute complete obstruction, the trouble is almost certainly due to volvulus.

The Origin of a Ganglion.—The claim which Ledderhose advanced in 1893, that ganglia are cystomata arising in para-articular tissue by gelatinous degeneration, and that large cysts are formed by the union of small ones, while not explaining all the difficulties connected with this obscure subject, nevertheless seems to stand the test of time. The latest evidence in support of this theory is brought forward by THORN in the *Archiv f. klin. Chir.*, vol. lii, p. 593. His microscopic examination of numerous specimens conforms, in general, to that of Ledderhose. He also reports an interesting case in which a small tumor, presumably a ganglion, was cut down upon. The tumor was situated upon the radial side of the back of the hand, and moved with the tendon of the extensor communis digitorum running to the index-finger. When the sheath of the tendon had been opened, it was seen that a small cyst existed in the substance of the tendon, and which, in its contents and the character of its wall, presented macroscopically the appearance of a ganglion. Microscopically, it was plainly a gelatinous degeneration of the tendon. It appeared almost certain that if left to itself this cyst would have ruptured into the tendon-sheath.

Mortality in Diphtheria of Less than One Per Cent.—NEUMAYER (*Centralbl. f. Inner. Med.*, 1896, No. 44) reports that he has treated, since 1880, 977 cases of diphtheria, with only six deaths, a mortality of 0.6 per cent. The treatment consisted in gargling, irrigating and swabbing with the following solution:

Potassium chlorate, ...	℥ss
Lime water, ...	℥vi
Decoction of marsh mallow, . .	℥xxv

For use (every hour or every two hours), a few spoonfuls are diluted with three or four times as much hot water.

By employment of this treatment, according to Neumayer, the fever falls, comfort is felt, and a striking demarcation of the diseased portions appears and the further spread of the inflammation is prevented. His theory of the treatment is that the gargle coagulates the exudates and infiltrates, thus fixing their toxins, which are oxydized and rendered harmless by the potassium chlorate.

THERAPEUTIC NOTES.

Double Pointed Tacks for Sutures.—A novel substitute for a suture in skin incisions is recommended by WACHSMANN in the *Berl. klin. Woch.*, November 9, 1896. It is neither more nor less than a double pointed tack, such as is used to nail matting to the floor. The points are made short, about one-quarter inch long, and are slightly bent toward the center so as to prevent their slipping out. It is claimed that they can be applied in about one-quarter of the time required for a suture. They are made of fine steel wire and nickel plated. They can be sterilized in any manner, and may be left in the skin ten days if necessary without setting up any irritation.

Methylene Blue for Headache.—This substance which, on account of its intense coloring properties, has not become as popular as its analgesic virtues warrant, has found in LEWY an enthusiastic advocate. In the *Berl. klin. Woch.*, November 9, 1896, he speaks of the great success he has had with it in migraine. Through its very favorable action he has been able to relieve pain which defied all treatment, and to relieve it not temporarily but permanently. In order to avoid the vesical irritation which sometimes follows if this drug is given alone, it is prescribed in powders of one or two grains, together with an equal quantity of powdered nutmeg, administered in a capsule of which three or four a day are to be taken. It is necessary to caution the patient that the urine will become a deep blue color. This occurs within thirty minutes after the capsule is swallowed, and continues for eight to ten days.

Lewy's most marked successes have been in cases of angio-spastic migraine, and in nervous and neuresthenic headaches, and the results have been such that he speaks of the action of methyl blue as a curative, and not a palliative one.

Serum Diagnostic Test in the Fetus.—APERT (*La Med. moderne*, November 11, 1896) applied to the fetus the serum test for typhoid fever in the case of a woman suffering from that disease, and who, in consequence, aborted at the third month. Sterile fluids, taken from various parts of the body of the fetus, had no effect upon growing cultures of the typhoid bacilli. On the other hand, ten drops of macerated placenta, added to ten drops of the culture, produced a characteristic balling up of the bacilli.

Tincture of Horse-chestnut for Hemorrhoids.—ARTAULT of Vevey, Switzerland, prescribes tincture of horse-chestnut, in doses of from 20 to 30 drops, twice daily, in hemorrhoids, and claims it to be a specific.

Phosphate of Soda in Exophthalmic Goiter.—TRACHEWSKI, Kocher's assistant, extols the use of phosphate of soda in the treatment of exophthalmic goiter. He prescribes it in doses of from 25 to 40 grains daily.

Collodion in Pruritus Ani.—SAMWAYS of Mentone claims great success in the treatment of pruritus ani and hemorrhoids from painting the surfaces thoroughly with collodion.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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SATURDAY, JANUARY 9, 1897.

THE PREVENTION OF TUBERCULOSIS.

IN these days, which almost merit the name of the germ age, when timid reading people would, if they could, have even the air they breathe sterilized, the article by Dr. Holt, on "Tuberculosis in Infancy and Childhood," in the MEDICAL NEWS, December 12th, comes almost like a benediction.

The knowledge of the infectious nature of tuberculosis, and its dependence upon a germ, has led caretakers of infants to sterilize almost everything that goes into a child's stomach, sometimes greatly to the detriment of the child's digestion and nutrition.

The evidence adduced seems conclusive that tubercular infection is very rarely produced by alimentary ingesta, and that many of our precautions, so far as tuberculosis is concerned, have been unnecessary, while the real problem of prevention remains unsolved.

Among 119 autopsies on tuberculous children, 66 per cent. of whom were under two years of age, Dr. Holt found that the lungs showed tubercular lesions in 99 per cent., and the bronchial glands in 96 per cent., while in only 37 per cent. were the intestines and in 4 per cent. the stomach the seat of the disease. The lesions of the alimentary tract, when extensive, were almost invariably associated with extensive pulmonary lesions, and were generally secondary to them.

The deductions from his extensive and scientific pathologic observations are, that primary tubercular infection of the alimentary tract is of extreme rarity, and that this rarity is due partly to the power of the tract to repel, pass on and expel the germs, if ingested, but more largely to the fact that the milk of tuberculous animals is seldom infected and their flesh more rarely still. This observation, if true, and there is no reason to doubt it, is of vast importance, as it removes one of the reasons which have been urged for the sterilization of milk.

While it relieves our minds on one point, it should serve to sharpen our wits to devise methods of preventing infection through the respiratory tract. As is stated, "It is by breathing an atmosphere containing tubercle bacilli that most infants get the disease," and this knowledge brings disagreeably to our consciences the fact that we have hardly made a beginning toward the prevention of tuberculosis. Optimists as we may be, hardly a glimmer of hope is afforded by any plan except a strict quarantine of the tuberculous, including a destruction by fire of all secretions or other vehicles of infection. If a poor, inoffensive leper is known to be at large the people of a whole city shudder with fright and clamor for his confinement, compared to which death would be preferable; but, toward a disease much more infectious than leprosy, and of which about 6000 people die yearly in New York City, the laity are totally indifferent, and the medical profession, as a body, still apathetic.

A persistent and diplomatic campaign of education may do something in the way of prevention, but tuberculosis is on the increase where it has always existed, and has appeared where formerly it was unknown. It has only recently transpired that regions like Colorado and Southern California, where tuberculosis was formerly unheard of, and whose climatic conditions have, in recent years, attracted hordes of tuberculous people, have become infected and now offer no immunity even to natives. This transformation, in the light of our present knowledge, is due to a contamination of that previously pure air by imported infectious material.

If whole regions can be thus infected, how much easier can public conveyances, public thoroughfares, places of entertainment and worship, workshop and salesroom, hostelry and private house, become the scene of abiding infection. Much would be accomplished if the laity could be brought to a realizing sense of the infectiousness of the sputum; but that is only the first step, and, sooner or later, it will transpire that only by a rigid quarantine can the disease be checked. By no known human means can it be stamped out.

THE ANTISEPTIC VALUE OF IODOFORM.

IN spite of the published statements of such well-known surgeons and bacteriologists as Heyn, Rovsing, de Ruyter, Sänger, Neisser, Baumgarten, and König regarding the antiseptic value of iodoform—they having rejected it as possessing no germicidal properties whatever—it has continued to be used by almost every surgeon, and the clinical results obtained from its use are, on the whole, excellent. Indeed, if this were not the case the surgeon would not consent to defile himself, his clothes, his house, and his patients with it. Frequently-repeated experiments have proved beyond a doubt that germs of all sorts grow with their wonted vigor in close proximity to grains of iodoform powder, and it has even been said that they will multiply in the powder itself, though that is, of course, impossible, unless some nutrient material is combined with it. As a consequence, this discrepancy between bacteriological and clinical testimony has, up to the present time, remained one of the riddles of medicine, but it has apparently been solved by LOMRY, an assistant at the Löwen University. The details of his work were recently published in the *Archiv. für klin. Chir.*, vol. liii., p. 787.

His first series of experiments with iodoform were to determine its action upon suppurating wounds. A number of dogs and rabbits were selected for the test, the flanks of each animal being shaved and disinfected, and a wound made into the muscular tissues on each side. Both wounds were then injected with staphylococci. Iodoform powder was introduced into one wound, but not into the other, and both wounds were covered with aseptic dressings. The wounds were inspected daily, and numerous microscopic and bacteriologic tests were made. In all, twelve dogs and six rabbits were experimented upon. In every case the iodoform gave to the wound to which it had been applied, a red, healthy appearance, which was lacking in the wound of the opposite side. The iodoform reduced the amount of secretion, increased the diapedesis of the white blood corpuscles, and did not diminish their vitality, as shown by their ameboid movements; it favored cicatrization, and, finally, which really includes all the foregoing, it delayed the development of the microbes. In other words, these experiments proved, as far as experiments upon animals can prove, the correctness of the clinical experience with the drug.

Lomry next repeated the laboratory tests with iodoform in the manner practised by bacteriologists—with gelatin, agar, and bouillon cultures—and found, just as others had found, that it had practically no effect in delaying the growth of microbes. But the surface of a wound does not present the same conditions as does nutrient gelatin in a test-tube; the iodoform disappears, to a certain extent, from the former, while it does not from the culture medium, so the thought was suggested that iodoform might be soluble in a wound, and hence its antiseptic action. It is insoluble in gelatin, agar, and bouillon, and in these culture media it is inert. It is, however, soluble, to a certain extent, in serum, hydrocele fluid, and the like, and the theory was entertained that if the culture medium contained a considerable proportion of serum, iodoform would restrain the development of germs in it exactly as it does in wounds. With this theory in mind, numerous experiments were carried out with serum obtained from the blood of the horse, dog, and rabbit, and with the fluid from hydroceles, blisters, pleurisy, and abscesses in man, and in every instance the result was the same, *viz.*, the cultures in the medium in which iodoform was employed grew much less rapidly than those in which there was no iodoform.

It is to be noticed, however, that this antiseptic action of iodoform is a weak one, and that in no case did it altogether prevent the development of the bacteria.

The natural course of infection in a wound may be hindered by iodoform, then, in three ways: (*a*) By limiting the development of the microbes; (*b*) by lessening their virulence; and (*c*) by neutralizing their toxins.

In another series of experiments, infected serum,

with and without iodoform, was injected into rabbits. The results were analagous to those obtained in test-tubes. If a certain amount, say one-quarter of a cubic centimeter, of a given sero-bouillon culture of staphylococcus was sufficient to kill a small rabbit in sixteen hours, the same amount of culture with iodoform would prove fatal only after the lapse of twenty-four hours. Here, again, the difference was one of degree only, though by careful work it was found possible to determine the dose of culture which would kill without the admixture of iodoform, but would not kill with it.

Similar experiments made with the filtered toxins of pyogenic microbes (diphtheria and tetanus bacilli, and bacteria coli commune) gave like results, so that the iodoform may be said to have an antitoxic action, although it is by no means a complete one. The fact may be accepted, therefore, that iodoform is an antiseptic, and that it acts in the manner above suggested, although Lomry does not attempt to explain it. The so-called solution in serum, in fact, does not appear to be an ordinary solution at all. After being filtered, dried, and pulverized, and treated for a long time with ether, and then distilled, not a trace of iodoform or iodin could be detected in the distillate, although the residue gave a strong iodin reaction.

However, the first question is not, How does iodoform act?, but, Has it a real, even though weak, antiseptic action?, and this seems to have been answered beyond a doubt by this thorough series of experiments.

ECHOES AND NEWS.

An Italian Honor.—The Italian government has bestowed on Dr. Behring of Paris the honor of Grand Cordon of the Crown of Italy, in recognition of his discovery of the antidiphtheritic serum.

Sir Joseph Lister a Peer.—One of the chief interests in the New Year's honors is the peerage bestowed upon Sir Joseph Lister, who is the first medical practitioner called as such to the House of Lords.

British Medical Association Meeting at Montreal in 1897. The Montreal people have determined to build a temporary large hall on the grounds of the McGill University to supplement the other buildings upon the campus. This special building will be chiefly used as a reception room and business office, in order to avoid the overcrowding that has formerly been a drawback and source of confusion. Twelve college buildings will be thrown open to the meetings of the twelve sections.

Alumni of Mt. Sinai Hospital.—The associated alumni of Mt. Sinai Hospital, New York, have elected these officers: President, Dr. Albert H. Fridenberg; vice-president, Dr. Richard H. Cunningham: secretary, Dr. Martin W. Ware; treasurer, Dr. Edwin Sternberger.

College of Physicians and Surgeons, New York.—The *Bulletin* of Columbia University for December states that the serious illness of Professor Peabody has incapacitated him from giving his lectures in therapeutics and materia medica, though it is hoped that he will be able to resume his work early in 1897. His place has been filled by Dr. Henry A. Griffin, who graduated at the College of Physicians and Surgeons in 1889.

Death of Dr. Pancoast.—Professor William H. Pancoast, the distinguished physician and surgeon, died at his home in Philadelphia, January 4, 1897, aged sixty-four years. He was the son of the famous surgeon, Joseph Pancoast, and was born in Philadelphia on the 16th of October, 1835. He was graduated in the Jefferson Medical College in 1856, and afterwards studied for three years in London, Paris, and Vienna. On his return to this country, he established himself in practice in Philadelphia, and soon acquired a high reputation as a bold, rapid, and skilful operative surgeon, who was seldom mistaken in his diagnosis and was always conservative in his treatment. He served as a surgeon in the army during the Civil War. In 1874, he was elected to succeed his father as professor in the Jefferson Medical College. He became professor of the Philadelphia Medico-Chirurgical College in 1886.

The Trained Nurses of America Organize.—Under the name of the "Trained Nurses United Aid Society of America" the most extensive association of nurses yet organized in this country has been recently incorporated. The movement, as enlarged, is in the interest of no less than 6000 trained nurses now finding employment in this country. The object of the society is the relief of members whose professional activity is suspended on account of illness or accident, and in case of death the payment of a funeral benefit. Such advantages also are proposed as homes of rest, loans of money in case of temporary distress, a sickness fund, endowed beds, and pensions.

The Fly as a Carrier of Bacilli.—Hoffman has demonstrated the presence of the tubercle bacillus in the bodies of flies taken in a room occupied by a consumptive. The droppings of the flies were full of bacilli, which were shown by experiment to be fully virulent. Coppen-Jones has proved by means of chromogenic bacteria that infection can be, and actually is carried, not only in the bodies of flies, but also by their feet. In one experiment cultures of the bacilli prodigiosus were mixed with tuberculous sputum. Flies which had been in contact with this mixture were permitted to walk across the surface of sterilized potatoes. In forty-eight hours numerous colonies of the bacillus prodigiosus were visible.

Prizes for Advances in Science.—A fund estimated to be nearly $10,000,000 has been devoted to the cause of science by the will of the late Alfred Nobel, the Swedish engineer and chemist, of Stockholm. The proceeds of this

handsome sum will be divided equally into five prizes, to be awarded annually. Three of the prizes will be for the greatest discovery in physics, the greatest discovery in chemistry, and the greatest discovery in physiology or medicine. The fourth prize will be for the most notable literary contribution on physiology or medicine, and the fifth for the greatest achievement for the promotion of peace. The competition for these prizes will be open to the world.

Russian Expenditures for Hygienic Purposes.—The Russian government has just published some figures which give an idea of the considerable sums that Russia consecrates to hygiene and medicine. These figures bear upon thirty-four governments of European Russia where the system of the *Zemstros* prevails. The *Zemstros* are the local committees of government analagous to the French municipal or general councils. These committees have in their jurisdictions free medical assistance in hygienic affairs. In 1895 the expenses depending on these two objects came to the sum of eighteen million roubles, about fifty millions of francs, whereas the total expenditure was sixty-six millions of roubles, or about 175 millions of of francs. Medical and hygienic assistance have thus absorbed about a third of the sum spent.

Dr. Theodore G. Wormley Dead.—Dr. Theodore G. Wormley, the distinguished chemist and toxicologist, and professor of these branches in the medical department of the University of Pennsylvania, died on the 3d inst. of stomach trouble, after an illness of several months. He was born in Wormleysburg, Pa., on April 1, 1826, educated at Dickinson College, and in 1849 was graduated in medicine from the Philadelphia Medical College. In 1852 he was called to the chair of chemistry and natural sciences at Capitol University, Columbus, Ohio, which he held until 1865, and was also professor of chemistry and toxicology in Sterling Medical College from 1854 to 1877. In 1877 he was called to the chair of chemistry and toxicology in the medical department of the University of Pennsylvania, which he has since held.

The Pennsylvania State Board of Medical Examiners.—The rapidly increasing standard required by this board is an encouraging indication of progress toward the general elevation of scientific medicine in America. Nearly thirty-eight per cent. of the applicants were rejected by the board at its December meeting, while the percentage of failures in July last was only fifteen. Bacteriology is said to have been the subject upon which many showed an insufficient knowledge. The scope of each examination is intentionally broadened, and a more varied, as well as a more precise acquaintance with all departments relating to practical medicine, will be exacted at each succeeding session of examiners. While sympathy might be felt for those who fail, congratulation for the worthy should be extended by all who have the glory and honor of the profession at heart.

Yersin's Anti-plague Serum.—Dr. Monod, a prominent health official at Paris, has communicated the following in the Académie de Médicine: The French consul at Haiphong writes that M. Chausse treated by injection two students who had been stricken by the bubonic plague, and cured them both. Dr. Yersin, during ten days at Amoy,, obtained twenty cures of bubonic plague out of twenty-two cases treated by means of subcutaneous injections of serum from the Pasteur Institution. The efficacy of the Yersin serum as a cure for bubonic plague may now be regarded as a scientifically demonstrated fact. It follows that by organizing a sufficient supply of serum it ought to be possible, provided the Chinese government takes the necessary steps, to cause the disappearance of the bubonic plague from the regions in China where the horrible malady is endemic.

Fees of Austrian Professors.—Everyone knows that in the German universities the professor is paid by his students, and that his fees represent the greatest part of his benefits. The Austrian government, notwithstanding the resistance of the majority of doctors, has just decided to modify this state of things by presenting a bill which regulates the salary of the professors of a university. This bill suppresses the fees of students to professors and allots the payment of professors directly to the government. Students will not pay less but they will pay to the government and not the professors. This is the French system. The professors who teach abstract matters (*théoriques*) and who have small audiences will profit by this change, but others, and particularly professors of clinics, who have from three to four hundred students, will see their revenues considerably diminished. It is to be feared that these professors will no longer hesitate to respond to calls from German universities, and on the other hand that German professors will refuse henceforth to accept a chair in an Austrian university. The new law would be fatal to the old fame of the medical school of Vienna.—*Méd. Moderne.*

Surgery and Vivisection.—A curious instance of the direct application of vivisection to practical surgery was related to the Linnean Society, by Mr. J. D. Middleton. It is the custom in Smyrna to heal wounds by the help of ants. A friend of Mr. Middleton received a severe but clean cut on the forehead. He went to a Greek barber to have the wound dressed, and the barber employed at least ten living ants to bite the two sides together. Pressing the margins of the cut with the fingers of the left hand, he applied the insect by means of a pair of forceps held in the right hand. The mandibles of the ant were widely open for self-defence, and as the insect was carefully brought near the wound, it seized upon the raised surface, penetrated the skin on both sides, and remained tenaciously fixed while the operator severed the head from the thorax, so leaving the mandibles grasping the wound. The same operation was repeated until about ten ants' heads were fixed on the wound, and left in position for three days, or thereabouts, when the cut was healed and the heads removed. Sir John Lubbock, in his work on "Ants, Bees, and Wasps," quotes from M. Mocquerys a passage which relates that the Indians of Brazil made use of this procedure in the case of wounds. He had often seen natives with wounds in course of heal-

ing with the assistance of seven or eight ants' heads. This surgical ant is the *Atta æphalotes* (Linn).—*The Scalpel*, December.

The Commissioners of Charities and the Hospital Question. At the last meeting of the Medical Society of the County of New York the following preamble and resolutions were proposed and adopted:

WHEREAS, During the year 1895 the previous Board of Commissioners of Charities dismissed the members of the medical staffs of the City, Fordham, Gouverneur, Randall's Island, Workhouse, Almshouse, Maternity, and Nervous Diseases Hospitals, replacing them by nominees of the three medical schools of this city, to wit: the College of Physicians and Surgeons, the University Medical College, and the Bellevue Hospital Medical College; and

WHEREAS, The Commissioners of Charities have not rectified the injustice done by their predecessors during the past year, notwithstanding that frequent and repeated petitions have been made to them so to do; and

WHEREAS, The medical profession is satisfied that no permanent or equitable arrangement can be arrived at under the present condition of affairs, and that, if matters are left in their present condition, these positions will be a continued source of ill-feeling in the profession and of annoyance to the commissioners; therefore, be it

Resolved, That it is the opinion of the Medical Society of the County of New York, as the legal representative of the medical profession of this county, that all medical positions, salaried as well as unsalaried, which are within the present gift of the Commissioners of Charities, be taken away from said Commissioners and from the medical colleges and be placed under the control of the municipal civil service of the City and County of New York, to the end that fitness and merit, and not political nor collegiate favoritism, shall be the tests for appointment in the medical positions of the municipal service; and be it further

Resolved, That this resolution be referred to the Comitia Minora of the Medical Society of the County of New York, with instructions to draft a bill for presentation to the Legislature at an early moment, and to consult or coöperate with any body or bodies that it may think proper to secure the objects proposed by this resolution.

Obituary.—Dr. Jacob T. Field, of Bayonne, N. J., died November 24th. He was born at North Branch, Somerset County, N. J., in 1839, and was a graduate of Rutgers College and the College of Physicians and Surgeons of New York, class of 1863. He served in the United States navy with distinction during the war, and was honorably discharged from the service. With the late Dr. Frederick G. Payne, he founded the Bayonne City Hospital. He was a skilful surgeon with a large practice, and had practised his profession in Bayonne for more than thirty years. His wife and one son, Dr. Frank L. Field, survive him. —Dr. William Wallace, who died in Brooklyn on the 22d ult., was a man of special prominence in charitable and educational work, as well as having an extensive practice. Among the institutions with which he was associated were the Long Island College Hospital and Dispensary, St. John's and St. Mary's Hospitals, and the Home for Consumptives, the Church Charity Foundation, and the Vestry of St. Ann's-on-the-Heights. He was ex-president of the Pathological Society. He was a native of Cork, Ireland, having been born there sixty-one years ago. He held a double qualification from the Royal Colleges of Scotland in 1855 and 1860. He was an assistant surgeon in the naval service during the Crimean war. He settled in Brooklyn in 1864, and straightway became enlisted in all the honorable departments of work that signalize our profession. His final illness was locomotor ataxia, from which he suffered for about six months. His wife and two sons, one of the latter a graduate in medicine, survive him.

CORRESPONDENCE.

GUAIACOL IN RHUS-POISONING.

To the Editor of the MEDICAL NEWS:

DEAR SIR: August 16th last I was called to see a patient, male, aged forty-five years, suffering from an aggravated form of rhus-poisoning, the face being swollen to such an extent as to wholly obliterate the features, and the eyes being entirely closed. I made an application of zinc-oxid ointment, and ordered applications of carbonate of sodium ʒ ii in aqua ℥ iii on absorbent cotton. Result negative. Third day after onset I made an application of pure guaiacol, freely painting it over the inflamed area with a camel's-hair brush, and then covering the parts.

Next day there was marked amelioration of the trouble, and on the fourth day after inaugurating the guaiacol treatment, the poisoning and its resulting inflammation had entirely disappeared.

Again, on October 7th, I was called to treat a boy of eleven years with the same trouble, one side of the face and neck being affected to about the same extent as the previous case. I used the same treatment as before, *viz.*, guaiacol, and on the second day thereafter he was out and at school, the trouble having entirely abated.

Some two years ago I was led to try this drug in the treatment of erysipelas, having received a monograph on the subject from Dr. C. J. Whalen of Chicago, and with good results, which was my reason for experimenting with it in the above two cases of rhus-poisoning.

Of course, these being the only cases in which I have had an opportunity of using this treatment, it would be premature to claim the guaiacol a specific; yet it certainly seems to have been of good service.

E. K. MORRIS, M.D.

STURGEON BAY, WIS.,
December 26, 1896.

The Paris Night Medical Service.—According to *Médecine Moderne*, the public night medical service of Paris is maintained at a cost to the city annually of 145,000 francs, or about $29,000. In return for this service the patients paid the city but 3217 francs. One hundred and thirty-five doctors are employed, the yearly salary of each being 600 francs, or $120.

OUR PARIS LETTER.

[From our Special Correspondent.]

PROFESSOR ROUX TALKS ON DIPHTHERIA—PET ANIMALS AS DISSEMINATORS OF DISEASE—TWELVE FATAL CASES OF "PSITTACOSIS"—TUBERCULOSIS IN DOGS—"WOMEN AND THE CRUSADE AGAINST PROSTITUTION, VIVISECTION, ALCOHOLISM, AND WAR."

PARIS, DECEMBER 14, 1896.

On December 11th and 12th Professor Roux talked before his special students at the Pasteur Institute on diphtheria. Needless to say the lectures were extremely interesting and complete. The review of the recent work on diphtheria the world over was made a special feature. Though the talks lasted over four hours altogether, not once did the speaker mention the Pasteur Institute or his own work. Behring's investigations were given a large place. The recent work of Brieger and Boes was fully recalled, and Ehrlich, Sydney Martin, and our own Park, Williams, and Talbot Smith, received mention. Only that certain important lacunæ in our knowledge of diphtheria were filled up, without the mention of any names, one would not know how much Yersin and Roux had done on that subject. Metschnikow, in treating of cholera, had displayed the same modesty. There was a casual mention of a personal experiment in swallowing a certain amount of a living culture, and that was all there was to show that he had ever done any special work in the study of the disease. Thus, it would seem, the traditions of the Pasteur Institute are being lived up to, and the modest spirit of the great master is perpetuating itself in his pupils, and in the atmosphere of the Institute where rest his remains. Such self-abnegation is delightfully refreshing in these days of savants who are usually thoroughly immune to the microbe of excessive modesty.

Roux finds so far that none of the objections urged against the serum is well founded. The serum does not sensibly affect the normal individual even when injected in considerable quantities: it does not produce nephritis; it gives rise to no rashes other than those which any serum may occasion, and it has now been used in too many thousand cases to leave at all uncertain its absolute innocuousness, even though its administration is sometimes accompanied by various pathologic phenomena, of which, however, it is not the cause. The doubting Thomases in serumtherapy would find serious matter for thought in his enthusiastic hopefulness. He urges the early use of the serum, as soon as the slightest patch of membrane is visible, and without waiting for the result of cultures, and insists on its liberal injection. Not 5 or 10 units, but hundreds, even thousands, may be used in serious cases without the slightest fear.

At the hands of a number of French scientists, lately, pet animals have been coming in for their share of blame in the conveyance of infectious diseases. Two very striking reports have been made to the Academy of Medicine within a month. Gilbert and Fournier reported a series of some fourteen cases of a peculiar contagious disease which was almost always fatal (only two patients survived), which they traced to parrots. The specific cause of the disease is a bacillus that was described by Nacard in 1893 as having been found in the bone-marrow of certain parrots dead from the disease. The bacillus was found in the lungs of patients after death, and was rapidly fatal to guinea-pigs and rabbits, producing characteristic lesions. The microbe resembles very closely the bacillus of typhoid fever, and was at first supposed to be identical with it. It gives even the agglutinative reaction with typhoid serum, that has been considered so characteristic of Eberth's bacillus. Widal has pointed out within the past week, however, that there are certain distinguishing characteristics in the quality of its agglutinative action. The symptoms of the disease are those of a fulminant type of broncho-pneumonia, with intense depression, and Gilbert and Fournier are of the opinion that some of the reported family epidemics of pneumonia have been really due to this disease, for which they suggest the name, Psittacosis (*ψιττακος*, a parrot).

The dog has usually been considered very immune, or at least resistent, to tuberculosis. At one time injections of canine serum were suggested, I believe even employed, as a therapeutic measure in this disease. Dr. Cadiot now reports to the Academy of Medicine that in 205 autopsies on dogs, he found tubercular lesions 105 times. Only about half of the lesions were localized in the lungs. The dog is especially liable to mucous and cutaneous tubercular lesions. The nasal secretion often contains the bacilli, and the animals are peculiarly prone to have small and not easily noticeable but persistently discharging tuberculous fistulæ in the cervical region. The danger of infection, especially of children, is easily understood in such a case, and some of the cases of tubercular meningitis, where the family history and the personal environment give no trace of the mode of injection, may have had such an origin as this. The cat is reported by the same observer to have a series of mucous and cutaneous lesions very like those observed in the dog. The striking picture of the English observer in Iceland describing the children as "exchanging caresses and echinacocci" with dogs, is vividly recalled by the possibilities suggested by these observations.

Speaking of animals, one has been inclined to think that it is only in America that physiologic and bacteriologic work is hindered by the antivivisectionists, but, alas! it is now commencing in France, also. One of the recent numbers of Larousse's *Encyclopedic Journal* was devoted entirely to women and women's work, "*Les femmes et les feministes*," and a leading paper bore the title: "Women and the Crusade Against Prostitution, Vivisection, Alcoholism, and War." Verily, the experimenters have gotten into unsavory company. The wonderful results achieved during the last ten years by experimentation on animals does not hinder the propagation even here of rabid fanatical ideas of ultra-carefulness of animal feelings. Even Magnan's now classical description of the antivivisectionists as a special class of degenerates coming under the same general head as a number of other monomaniacs—people who have a little too much of one quality to be perfectly sane—does not seem to have stopped the propagandism very much. Meantime, the medical pro-

fession in general, as with us in America, looks idly on. One would not think their interests were at all involved in the question.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

PHILADELPHIA HOSPITAL TRAINING SCHOOL FOR NURSES—COURTESY EXTENDED BY THE PHILADELPHIA POLYCLINIC—UNSANITARY CONDITION OF BAKESHOPS—BEER BOTTLES AS RECEPTACLES FOR SPECIMENS OF URINE.

PHILADELPHIA, January 2, 1897.

At the graduating exercises of the Philadelphia Hospital Training School for Nurses, held in the amphitheater of the hospital on the 29th of December, twenty-one nurses were awarded diplomas. Addresses were made by Dr. John H. Musser of Philadelphia, and Dr. William Osler of Baltimore.

No better illustration of the good feeling which exists between the medical profession of New York and Philadelphia, and especially between the teaching faculties of the two cities, could be had than the fact that upon the receipt of the news of the damage by fire on Christmas morning to the New York Polyclinic building, the Faculty of the Philadelphia Polyclinic promptly extended its sympathy and the courtesy of recognizing, without charge, the tickets held by the students for their unexpired term. This was gratefully appreciated by the Faculty of the former institution, but their prompt and vigorous action in providing facilities for continuing their work rendered acceptance of the courtesy unnecessary.

At the meeting of the Woman's Health Protective Association, held at Association Hall on December 29th, Dr. Benjamin Lee, Secretary of the State Board of Health, addressed the members on the subject of the unsanitary condition of the bakeshops of the city. He was present at the meeting in response to a request that he give his opinion on this subject. In the course of his remarks he said: The importance of removing the evils attendant upon the present filthy condition of the bakeshops is as great, or greater, than the importance of providing pure and wholesome milk. It is a matter of notoriety that in the outbreaks of cholera in Europe the workers in the bakeshops have been the first to be attacked by the disease, and it is also known that the mortality of bakers is greater than that of the average of artisans. These unfortunate results are due to the vitiated atmosphere of the cellars where baking is usually carried on. If the agitation for an improvement of the sanitary conditions were conducted solely for the welfare of the workmen in these shops it would be worthy of encouragement, but the need for it is very much greater in consequence of the spread of disease that must accompany the preparation of bread in such places. It has been suggested that a bill be introduced into the Legislature providing that the factory inspectors be instructed to inspect the bakeshops and enforce regulations as to their condition, but it would be more appropriate that the matter be under the care of the Board of Health.

A typewritten letter from the Pennsylvania Bottlers' Protective Association has been received by the physicians of this city, calling attention to an enclosed letter from a physician, deprecating the use of beer or other bottles originally intended for beverages, as receptacles for specimens of urine, and requests the absolute refusal of specimens brought in such bottles. The practice, though strenuously to be condemned, is unfortunately only too common in certain portions of the city, and especially in dispensary practice.

TRANSACTIONS OF FOREIGN SOCIETIES.

London.

SPONTANEOUS DISAPPEARANCE OF SECONDARY CANCER.—ARSENIC CAUSES DISAPPEARANCE OF SARCOMA OF THE TESTICLE.—THE CAUSE OF PAIN IN MOVABLE KIDNEY.—SUCCESSFUL REMOVAL OF A GLIOMA OF THE CEREBELLUM.—TREATMENT OF PERITONITIS DUE TO PERFORATIVE APPENDICITIS.

AT a meeting of the Clinical Society of London, November 27th, PEARCE GOULD showed a case of *spontaneous disappearance of a secondary cancerous growth* in a woman aged forty-four years. Ten years previously she had received a blow on the left breast. Five years after this the breast was removed for scirrhous carcinoma. Recurrence of the growth was twice operated upon. The tumor again recurred, with difficulty in breathing, and it was considered inadvisable to perform any further operation, as the growth had probably become disseminated. There were numerous hard nodules around the scar, and considerable enlargement of the glands in the axilla and above the clavicle. She also had pain in the left thigh and one inch of shortening, and below the trochanter there was a large, bony growth. Nodules also appeared in the right axilla and above the right clavicle, and the right chest was dull below the spine of the scapula. This was the condition in March, 1896, when she was thought to be in the last stage of malignant disease, and her death was daily expected. Three months later she was much better. The enlargement of the axillary and clavicular glands had disappeared, dyspnea had ceased, and there was no dulness on percussion except at the base of the right chest. The nodules in the chest-wall had also disappeared, and the swelling of the leg had markedly diminished. There had been no treatment which might influence the progress of the disease. Microscopic examinations of the growths made by two competent observers revealed typical scirrhous cancer.

GOLDING-BIRD mentioned the case of a man, aged sixty, whose right testicle had been removed for sarcoma, of which he had microscopic sections. Three weeks later the stump fungated, and a large mass was removed, with as much of the cord as possible. In another three weeks there was an infiltration in all the surrounding skin. Morris saw this case, and unhesitatingly pronounced it malignant, but suggested arsenic in rapidly increasing doses. In ten days, when the poisonous dose had been reached, the growth had entirely disappeared. That was three years ago, and there has not been any recurrence.

At the meeting held December 11th, DAVID NEWMAN read a paper on *increased vascular tension in the kidney as a cause of renal pain, hematuria, and albuminuria*,

in which he pointed out that the causes of increased vascular tension were (1) mechanical and (2) some morbid process. Thus a movable and large kidney in one of his patients caused severe paroxysms of pain, hematuria, etc., the symptoms resembling those of renal colic. There was no albuminuria, independent of the presence of blood. Suture of the kidney to the parieties relieved these symptoms. In another case of floating kidney, it was found that the rotation of the organ had coiled the ureter and blood-vessels around one another.

Another case was cited to prove that inflammatory hyperemia causing pain and albuminuria may be relieved by incision. This patient gave a history of lumbar pain, with small oxalate calculi, and occasional hematuria. The urine contained albumin, but no casts. While under observation, he had several attacks of renal colic. The kidney was found to be much enlarged, very tense and of a dark chocolate color. No calculi were found, and the bleeding from an incision into the pelvis of the kidney was so free that the wound in the cortex had to be plugged with iodoform gauze. The patient made a good recovery, the albuminuria entirely disappeared, and his health has since been excellent. Two other cases were mentioned, in which strangulation of omentum or bowel was accompanied by renal hyperemia, with almost complete suppression of urine, which the author thought due to a reflex spasm of the renal vessels of the ureter.

BRUCE CLARKE thought that obscure symptoms of calculus were often due to movable kidney.

BARKER, referring to those cases of supposed calculus in which none was found on operation, but in which all symptoms thereupon subsided, suggested that minute disseminations of uric acid in the tubules were dislodged by manipulation. An unsuccessful exploration for calculus is often followed by large quantities of uric acid in the urine.

PARKIN had removed from a four-year-old child in June, 1894, a *gliomatous tumor of the cerebellum*. For several months there had been gradually increasing difficulty in walking and talking. The gait was ataxic, with a tendency to fall backward. The left leg was rigid, and both knee jerks were exaggerated. The temperature was subnormal, pulse irregular, but not slow. There was no occular paralysis, but intense optic neuritis with hemorrhages. The child was listless, complained of constant headache, and had three severe general convulsions. Her condition was rapidly becoming worse. A large scalp flap with the apex well down on the neck was raised upward, the bone was removed, and a flap of dura mater, with the apex upward, was turned downward. The occipital sinus was ligated. A portion of each lateral lobe, and the posterior part of the middle lobe, were of a different color from the rest of the cerebellum and were excised. In three months the child recovered the power of walking and talking, and up to the present time (2½ years) there has been no return of any of the symptoms. Examination of the tumor showed it to be a glioma.

Another interesting case of brain surgery was described by GUTHRIE at a meeting of the Royal Medical and Chirurgical Society, held December 8th. The patient, a man aged twenty-five, had suffered for twenty-two years from violent jactitations of the left arm and leg, and in a less degree of the right arm and leg. The movements were ataxic, choreaic, and clonic in character, and were increased by attempted voluntary action. There was external strabismus and proptosis of the left eyeball. The tongue deviated to the right. The symptoms seemed to indicate functional perversion of the right motor area of the cortex. On operation, this area was healthy in appearance, but electrical stimulation of the thumb centers produced fits of Jacksonian epilepsy. The thumb center with the adjoining area of the cortex, measuring about one-half inch in diameter, were excised. The result of the operation was complete paralysis of the left hand and arm, lasting about a week. During this time he had seventeen epileptic fits, at first affecting the right side only, but afterward becoming universal. After a week, voluntary actions of the left arm were recovered, but they became increasingly jerky and ataxic until, in three months, his condition was the same as when the operation was performed. It was concluded that the excision of cortical centers is only likely to arrest movements permanently when they are extremely limited in range and extent, and in such cases the operation is unnecessary. In severe cases the removal of cortical areas might possibly arrest the movements permanently, but the dangers of operation overbalance its possible advantages.

At a meeting of the Medical Society of London, held December 14th, MAYO ROBSON described six cases of general peritonitis following perforating appendicitis on which he had operated during the past year, and five of which had recovered. His treatment was very free irrigation with water or weak boracic acid solution, followed by free drainage with several large rubber tubes.

Berlin.

GASTROENTEROSTOMY FOR CARCINOMA.—ACTINOMYCOSIS OF THE JAW.—LEPROSY.—ESOPHAGOTOMY FOR THE REMOVAL OF FALSE TEETH.—THE WARM BATH AS AN AID TO ABDOMINAL PALPATION.—HEMORRHAGE FROM THE HEALTHY KIDNEY.

In the Medical Society, November 4th, ROSENHEIM presented a patient upon whom had been performed *gastroenterostomy for carcinoma* of the stomach two and a half years before. At the time of the operation the general condition of the patient was bad, and the tumor was so extensive that a radical removal was out of the question. Although the tumor had continued to grow, the general condition of the patient had improved and she was still very comfortable. In such cases this operation should be recommended, because it frees the patients from the constant, fearful pain and uncontrollable vomiting from which they suffer.

GLUCK presented a patient who had suffered from *actinomycosis of the jaw, parotid gland, and the associated soft parts*, requiring the removal of the right half of the right jaw and the parotid, and the ligature of the external carotid artery. The wound healed perfectly, but no apparatus had been successful in enabling him to chew solid food. Gluck also exhibited skiagraphs of a boy, a

portion of whose jaw was removed nearly three years ago for myxofibrosarcoma. The sections of the jaw were held in position by a strip of metal screwed into the bone. The result was perfect, and the action of the lower jaw was normal. Such substitution of ivory or metal can only succeed in case of healthy ends of bone which are capable of regeneration, absolutely aseptic union, and perfect fixation. Faulty asepsis leads to suppuration, erosion of the bone, and ulceration. Imperfect fixation produces an osteitis and a gradual loosening of the ivory, bone or metal.

HAVELBURG discussed the subject of *leprosy*, more especially with reference to its occurrence in Brazil, where he had had large experience. As yet no attempt to cultivate the leprosy bacillus has succeeded, nor have any inoculation experiments upon animals. He believed in the contagious character of the disease, although unable to say in what way infection occurs. Apparently unfavorable hygienic conditions are required before the bacillus can obtain a foothold. At any rate, the great majority of cases occur among persons living in the most filthy condition. The period of incubation is doubtless a long one. For example, a man and a woman who had lived in good circumstances in Brazil for a long period returned to Germany, apparently in perfect health. The man, after a year and a half, and the woman, after two years, developed the disease.

KOEBNER asserted that there was no reason for the alarm felt by the public if a single case of leprosy was discovered in some hotel; that the disease could not be communicated by brief contact with the person affected, but that only those individuals contract leprosy who have an intimate association with lepers for months or perhaps even for years. In cases of difficult diagnosis, the method recommended by Kalindero is of service. He discovered that in the contents of a blister the bacilli appear within three or four days. The repeated examination of the blood is also essential. The history of various cases had convinced him that extraordinary and unknown circumstances were necessary to explain the contagion of leprosy.

JOSEPH narrated an instance in which a child of healthy parents which had a leprous wet-nurse afterward became leprous. He was of the opinion that one distinct case of this nature outweighed a great deal of negative testimony regarding the contagion of the disease. The method of contagion is truly unknown, but more examination ought to be given to the sputum, which often contains leprous bacilli in great numbers.

FRANZ KOCH looked upon leprosy as contagious and incurable, and advocated the complete isolation of lepers.

ROSENHEIM exhibited, at the session of November 11th, a *patient who swallowed a plate with four false teeth*. On the following day, a sound was arrested at a distance of 24 cm. from the gums. On the next day a 12 mm. sound passed readily into the stomach. It was therefore thought that the teeth had passed out of the esophagus. They did not appear in the stools, and after four days, by means of an esophagoscope, the false teeth were plainly seen, just below the larynx. All attempts at extraction failed, and so firmly were they fixed in the esophagus that after an incision had been made it was necessary to cut the plate in pieces in order to remove it.

The wound suppurated, and on the fourth day after operation the patient completely lost his voice, on account of paralysis of both laryngeal nerves. As this symptom did not arise until four days after operation, it was attributed to an inflammation in the nerves, proceeding from the suppurative peri-esophagitis. Aside from this point, the case was interesting in showing the failure of a sound to detect the foreign body, whose presence was easily made out by the esophagoscope.

In another case—that of a girl who in sport had swallowed three 10-mark gold pieces, eight days passed before an examination was made. Here again with the esophagoscope the coins were plainly seen and were easily extracted, although 34 cm. from the teeth.

The advantage of *abdominal palpation in a warm bath* was brought forward by LENNHOFF. The influence of the warm bath relaxes the skin, as well as the voluntary muscles. After a patient has been for ten or fifteen minutes in a bath as warm as can comfortably be borne, abdominal palpation can be carried out almost as perfectly as in narcosis. This method possesses also the advantage that voluntary respiratory efforts can be called upon for assistance is diagnosis. Its absolute freedom from danger is another point of superiority. Lennhoff mentioned two cases in which by this means he had been able to confirm a suspected diagnosis. In one instance he made out a carcinoma of the stomach about the size of a hazelnut. It could not be felt at all by the usual methods of examination. In another case he settled the diagnosis, which lay between a carcinoma of the stomach and an aneurism of the aorta, in favor of the former affection. Both of these diagnoses were confirmed by autopsy. For convenience in examination, the patient is suspended in the tub by straps, which can be raised or lowered at will.

At a session of the Union for Internal Medicine, held November 16, 1896, LITTEN presented a case of *peculiar configuration of veins of the thorax and abdomen*. There were six parallel dilated and tortuous veins extending from Poupart's ligament to the sternum and ribs. Examination of the chest showed a tumor on the right side. This proved to be an aneurism of the ascending aorta, which so compressed the right ventricle that the vena cava inferior was obstructed. Owing to the fact that this obstruction was gradual, collateral circulation through the azygos veins was established and immediate death was avoided.

At the session of November 30, 1896, KLEMPERER spoke of the occurrence of *hemorrhage from the healthy kidney*. This occurs in cases of vicarious menstruation. Psychical influences may also cause vaso-dilation and bleeding. Hysterical hemorrhages are to be included under nervous influences. The author had known two such cases. There are in medical literature a number of cases of bleeding from the kidney supposed to be due to a calculus. In some of these the kidney was removed, and in others merely incised. In none of them was anything found, but the operation was followed by recovery from the bleeding.

Klemperer divided the cases into: (1) acute, due to over exertion, such as mountain climbing; (2) chronic, which may be either hemophylic or angioneurotic in character. Only a single hemophylic case had been reported. The author mentioned two others. The hemorrhages occurred at irregular intervals with more or less pain. The presence of blood cylinders in the urine proved the hemorrhage to be of renal origin. Both cases recovered without operation, one of them after the use of warm baths associated with cold local douches. Two cases of renal hemorrhage of the angioneurotic type were confirmed by cystoscopic examination. Both recovered, one after the removal of the kidney, which was found to be absolutely normal. In hemophylic or neurosthenic persons, although the hemorrhages may have continued for a long time, if no organic trouble can be made out, operation is distinctly contraindicated.

NITZE spoke in favor of simple incision to expose the kidney in doubtful cases—a harmless procedure which sometimes gives most valuable information.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE—SECTION ON GENERAL MEDICINE.

Stated Meeting November 17, 1896.

REYNOLD W. WILCOX, M.D., in the Chair.

ANDREW H. SMITH, M.D., read a paper entitled

ANEMIA IN RELATION TO CARDIAC DISEASE.

He commenced by saying that when it is remembered that the three prominent characteristic signs of organic disease of the heart, namely, dyspnea, edema of the lower extremities, and the presence of a cardiac murmur, are also found in connection with and as a result of anemia, it can be readily appreciated that when both of these conditions are conjoined in the same individual a good deal of nice discrimination is required in order to assign to each factor its proper share in the causation of the phenomena met with. Unfortunately, he said, the tendency is to ignore, in a great measure, the functional disturbances, and deal only with the effects of the organic lesion or lesions present; so that proper consideration is not given to the importance of the blood changes taking place, which, unless interfered with, will eventually produce the most disastrous results. This is a grave mistake. It should always be borne in mind that in organic disease of the heart nature provides compensation by means of hypertrophy, and that the patient is in no danger from this source as long as the compensation remains adequate. Our efforts to sustain the heart directly should, therefore, be reserved until the time when this compensating power of nature begins to fail. In the meanwhile our attention should be mainly devoted to improving the condition of the blood; by which means material assistance can be rendered the patient. By eliminating the anemic element, the whole system can be invigorated and the heart thus enabled to stand much better the strain resulting from the organic trouble present.

As a matter of fact it has been found that in a large proportion of cases, anemia is present in connection with the organic disease. This is not to be wondered at when we reflect that the most prolific source of such organic trouble is rheumatism. Not only does the rheumatic disease itself impoverish the blood, but, unless special pains are taken to prevent this result, the salicylic acid and its compounds so commonly given in rheumatism have the effect of increasing this impoverishment. To a patient suffering from organic lesions of the heart, therefore, anemia is a matter of importance, and coming on or continuing when the compensation becomes defective, it is of grave import. The vigor of the constitution is seriously impaired and a vicious circle is established. Unless the progress can be arrested the course of the case will be rapidly downward.

The most obvious symptom of anemia is pallor, but in these cases this is liable to be obscured by cyanosis. Stephen Mackenzie has suggested, however, that an approximate idea of the extent of the anemia present can be obtained by an examination of the nail tips. As long as any pink hue remains here it may be inferred that the blood contains at least fifty per cent. of the normal quantity of red corpuscles. Fortunately for the matter of diagnosis, anemic murmurs are confined to the systole. A soft systolic murmur, of low pitch, heard in the pulmonary area, is that commonly met with. In the aortic area the vast preponderance of bruits are of organic origin. Hemic murmurs also occur very rarely in the mitral region. When they do occur there we do not find the displaced apex and forcible impulse met with in organic mitral disease. Leaving the cardiac region, we find anemic murmurs also in the arteries of the chest and neck. In pronounced anemia a murmur is heard with each ventricular systole. An arterial murmur might be met with where there is no bruit in the pulmonary area, and *vice versa*. A venous hum in the great veins of the neck has long been recognized as a prominent sign of anemia; but this venous hum is not entirely characteristic, since it may in some instances be heard when the individual is perfectly healthy. Still, its presence will often enable us to decide that a co-existent cardiac murmur is not of organic origin.

As to the dyspnea, there are no means at our command of distinguishing that due to anemia from that due to organic disease. Edema of the lower extremities, as had been mentioned, is common to both conditions; but if to this is added a more general puffiness over the body, it might be assumed that considerable impoverishment of the blood is present. The most conclusive evidence of the existence of anemia, however, can be obtained by the direct determination, by means of the instruments now at our disposal, of the proportion of red corpuscles and hemoglobin in the blood. Dr. Smith urged the importance of very frequent examinations of the blood, so that if it is found that one remedy is not satisfactorily combating the anemia, another may be substituted.

The treatment of the anemia met with in connection with organic cardiac disease is not essentially different

from that of anemia in other conditions. The necessity for relief of the blood condition is so urgent, however, that the most prompt and efficient measures are called for. In his own experience nothing had proved so satisfactory for the purpose required as the use of enemata of defibrinated bullock's blood. Of course, this did not exclude the use, by the mouth, of such other remedies as seemed indicated. The point that he wished to emphasize was, that, not only in advanced, but in the early stages of cardiac disease, the evidences of anemia should be sought for, and he was convinced that if the importance of this was recognized, we could avert many dangers, and carry our patients along in a much more satisfactory manner than otherwise.

DR. BEVERLEY ROBINSON said that while there were many cases in which the differential diagnosis was perfectly simple, all clinicians met with some in which they had a great deal of difficulty in determining just what belonged to the one condition, and what to the other. In this class of cases he believed it was often a good thing to look up the older authorities, like Stokes, for instance, who treated such subjects a good deal more fully than more recent authors, such as Flint, Loomis, and Osler. We were not, he thought, always making progress, simply because we changed our methods. An advance, however, had certainly been made in the present plan of examination of the blood. Still, when it came to the very difficult cases, even this procedure did not clear up some of the doubtful points.

We are, therefore, brought back to the question of systolic bruit at the apex. We feel that it is not entirely due to anemia. There may be dilatation of the left ventricle, and it is important to make out what part belonged to the anemia and what to the organic cardiac disease. All that he could say was that in reasonable doubt the physician should be judicious and sensible in the course pursued. A certain amount of heart tonics, such as digitalis, strophanthus or nitroglycerin, with moderate doses of strychnin, may be called for on account of the heart's action. When this blowing murmur is present it is not the part of wisdom to give large doses of digitalis or strophanthus. The great indication, as Dr. Smith has pointed out, is to improve the condition of the blood.

When the anemic condition is present no one could doubt for a moment that it adds very greatly to the gravity of the cardiac disease. We know that it will take both time and the most judicious management to get rid of it, whether it be secondary or primary. Of the remedies recommended, iron and manganese are the ones most commonly resorted to. He did not believe it very important that we should use this preparation or that preparation. Almost every physician has come to feel special confidence in some particular form of iron, and if he gets good results from it, it is better to stick to it than to go on trying every new preparation that the druggists throw on the market. At the present time it is the fashion to maintain that the organic salts are a great deal better than the inorganic ones, but, for his part, he had not yet seen sufficient evidence to convince him of this fact. His experience had taught him, however, that there are quite a number of cases in which iron may be given indefinitely without producing any result whatever, unless at the same time oxygen is administered artificially. He believed that the oxygen has the effect of rendering the iron more assimilable, but whether this is the case or not, he knew it to be true that the two combined successfully overcome anemia in some cases where iron alone has no effect. In conclusion, Dr. Robinson spoke of the efficacy in anemia of sulphur baths, either artificial or natural. He had been at Aix-les-Bains during the past summer, and he said that while much of the benefit which invalids received there was no doubt due to the change of air and life, he was convinced that the principal good effect in anemic cases was due to the sulphur baths. He believed that the same good results could be obtained by artificial sulphur baths at home, and especially in the case of young girls with slight degrees of anemia. Care should be observed, however, that the baths were not too warm or too long.

DR. WILLIAM H. THOMSON said that he felt somewhat disappointed that the reader of the paper had confined himself almost exclusively to the consideration of the hemic murmur. He thought the functional murmurs among the most important that we meet with. He had known of more than one individual to be rejected by life insurance examiners on account of a harsh, regurgitant murmur which was purely functional, and with no anemia present. There are also very strange murmurs incident to the act of respiration. These are all systolic, and certainly functional. A diastolic aortic murmur and a presystolic murmur cannot be functional. Having spoken of the murmurs heard in chlorosis, he referred to a class of functional murmurs which are met with in nervous individuals, as often in men as in women.

He related a case of this kind. A gentleman came to him trembling with excitement about his heart. He complained of pain in the precordial region, and an examination revealed the presence of a booming and buzzing murmur at the apex, which presented some of the characteristics of a mitral regurgitant bruit. The patient, having been asked to lie down, it was found that in the recumbent posture the murmur was very much diminished. When the pulse had declined from 100 to 80 it was found that the murmur had almost entirely disappeared. He was requested to take a long breath, and it was then found that it was gone altogether. It certainly would not have disappeared if it had been due to organic changes at the mitral valve. The recumbent position does not make an organic mitral murmur disappear, especially if the patient lies on the left side. The quality of the sound was also different from that heard in connection with a mitral regurgitant murmur, being, as had been said, booming and buzzing in character. Furthermore, it did not transmit to the left, and the greatest intensity was not at the apex, but in the fourth interspace, to the right of and above the apex. This kind of murmur he believed to be due to the irregular action of an excited heart, and was of muscular origin.

Another kind of functional murmur is that heard during certain acts of respiration, particularly inspiration.

One peculiarity of it is, that it is heard on both the right side and the left side, but away from the area of the heart (in the axillary region.) It is evidently produced in the lung, though he had no theory to advance as to the manner of its production. He could only say that it is to be found at a distance from the area of the heart, and that it unquestionably is a functional murmur.

Anemia, he went on to say, is in his opinion often the direct cause of cardiac disease. Throughout the animal kingdom the muscular power is proportionate to the amount of respiration. Among our women this does not seem to be the case, but the female peasants of Europe, and the women of the East, who are accustomed to work out of doors, are capable of enormous physical exertion. It is a fact that needs no demonstration, that the very first effect of anemia is to produce muscular weakness all over the body. The blood flowing from a muscle when it rested was more venous in character than the blood in the right side of the heart. Therefore, anemia always meant muscular weakness, and if it persisted it inevitably produces degeneration. There is no condition of fatty degeneration of the heart so pronounced as that met with in pernicious anemia. It is a mistaken idea to give iron simply because there is anemia. If there is any elevation of the temperature it does harm. Especially is this the case in acute articular rheumatism. So also in phthisis. In the anemia of both these affections cod-liver oil is much better than iron.

DR. FRANK W. JACKSON said that although Dr. Smith had claimed that anemic murmurs are always systolic, he thought that everyone who had had much experience in this class of cases must have found exceptions to this. Occasionally an anemic murmur might be diastolic, and various authorities had confirmed this view. He had himself, in several instances, heard a presystolic murmur in patients who were suffering from anemia and who afterward returned to health; showing the absence of organic lesions. As to dropsy of the lower extremities, Dr. Smith had maintained that it is apt to be more diffuse in anemia than in organic cardiac disease; but he did not think this distinction was of much practical service, as he was sure that everyone had met with anemic cases in which it was just as diffuse as in the latter. As to anemic murmurs being intensified by the recumbent position, he had found many cases in which the change of position produced no change whatever.

DR. H. NEWTON HEINEMAN said he thought it was about time that the profession should get rid of the idea that in any case that is at all difficult the diagnosis could be made upon a few data. Whether anemia is present or not, it is requisite that the physician should be in possession of a knowledge of the complete clinical history of the case, the exact character of the murmurs present, and the amount of arterial tension. If these and similar points were more carefully studied, there would be much less doubt in the minds of medical men than is at present the case. It is well to bear in mind also that the intensity of the murmur in any case bears no relation to the gravity of the lesion. Dr. Heineman spoke for some time in regard to the efficacy of baths. In all cases where it is possible, he thought that the patient should be sent to the location of the natural springs. While the sulphur baths of Aix-les-Bains were of great value in gout and rheumatism, he thought they were of no service in cardiac affections. The saline baths of Bad Nauheim, on the other hand, he believed were highly advantageous in diseases of the heart and circulatory system, promoting rapid tissue-metamorphosis. The chalybeate waters of Pyrmont were of special value in chlorosis. In many instances, however, artificial saline baths could be used with great advantage at home.

DR. SMITH, in closing the discussion, said that regarding the muscular murmur spoken of by Dr. Thomson, all the evidences of anemia were wanting. It was the sound, he thought, described by the late Dr. Austin Flint as intraventricular, and was a local muscular effect. As to the sound apparently referable to the respiratory act, he did not believe it was very common. He had met with it in three instances. One of them was a young girl, in whom it was sometimes present and sometimes not. It was a moderately harsh murmur, and occurred in inspiration, but not in expiration. He said he agreed with Dr. Thomson in regard to the harmfulness of iron in febrile conditions. In regard to the matter of diastolic murmurs, supposed to be of anemic origin, spoken of by Dr. Jackson, he said that this brought us back to the question of the possibility of such a thing as a presystolic murmur. Personally, he was not willing to accept its existence, and believed that the so-called presystolic murmurs were not really presystolic, but were heard just at the beginning of the systole.

H. NEWTON HEINEMAN, M. D., read a paper entitled

STENOCARDIA (ANGINA PECTORIS).

(See page 37.)

DISCUSSION.

DR. FRANK W. JACKSON said that the distinction referred to in the paper had always been somewhat a matter of wonder to him. If the pain were not very severe, the case was called one of pseudo angina; if it were severe, one of genuine angina. He thought stenocardia, also, a much better term than angina pectoris. The treatment advocated by Dr. Heineman, he went on to say, offered us new hope for our patients. He had always been afraid to tell an individual that he suffered from angina pectoris, as such a statement was commonly regarded by the public as equivalent to a death-warrant. It would be a great gain to be able to tell his patient now that he had heart-pain, and to encourage him to look forward to recovery. Still, it seemed to him that we cannot exclude pseudo angina altogether. We must recognize the fact, he thought, that we can have cardiac pain present, and yet not a true angina.

DR. CHARLES E. QUIMBY thought that the pseudo anginas might be regarded as a temporary anemia. The effect, which he believed was the important factor in the treatment by saline baths, was the relief of the capillary circulation. He then went on to speak of the modifying effect upon the heart of varying degrees of atmospheric pressure.